

02-9011-22-SI
REV. NO. 0

FINAL DRAFT
SITE INSPECTION REPORT
FLAGS INCORPORATED
BELLMAWR, NEW JERSEY
VOLUME 1 OF 2

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-9011-22
CONTRACT NO. 68-01-7346

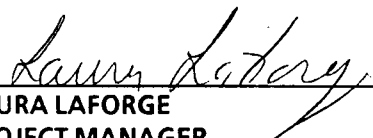
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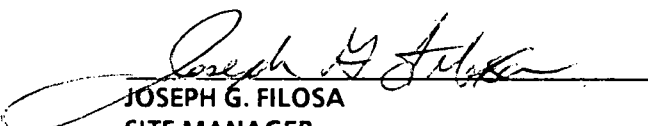
ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

SEPTEMBER 6, 1991

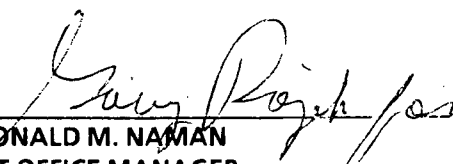
HALLIBURTON NUS CORPORATION
SUPERFUND DIVISION

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204737



PROJECT NOTE ON SITE INSPECTION ANALYTICAL RESULTS

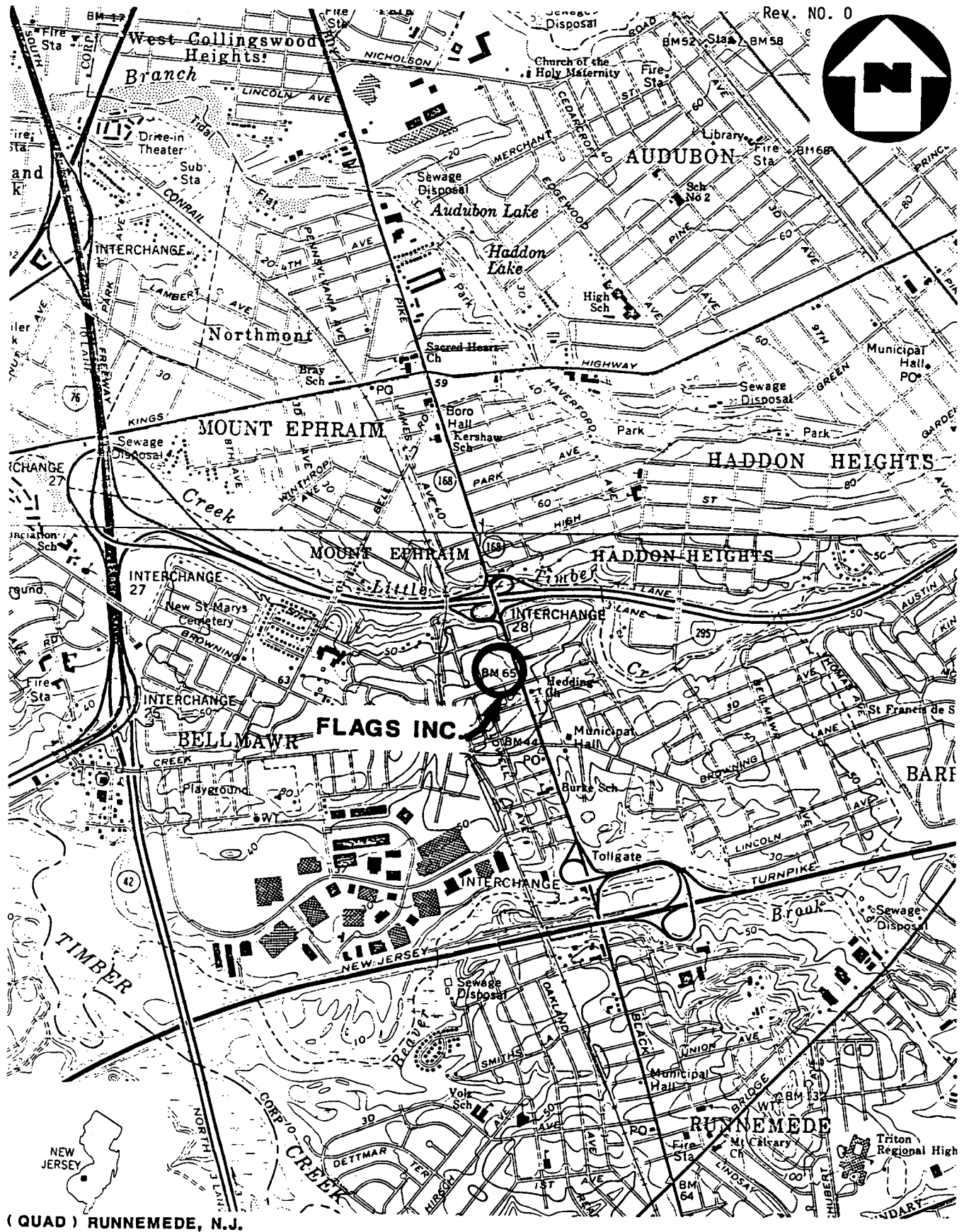
This report contains analytical results from the Site Inspection sampling conducted by the Halliburton NUS Environmental Corporation on February 27, 1991. These analytical results have undergone data validation by Halliburton NUS Environmental Corporation personnel following U.S. EPA Region 2 data validation guidelines. At the time of this report the data validation review had not received U.S. EPA Region 2 final approval. The inorganic analytical results have undergone the Contract Laboratory Program (CLP) laboratory data validation process. Data validation following U.S. EPA Region 2 data validation guidelines has not been performed on these analytical results.

SITE SUMMARY AND RECOMMENDATIONS

Flags Incorporated (a.k.a. Amko Manufacturing Inc.) is located at 41 Oak Avenue, Bellmawr, Camden County, New Jersey. The facility is located in a mixed commercial/residential area of Bellmawr. The site encompasses an area of approximately 2 acres, and is bordered to the north by a vacant lot, and to the east, south, and west by private homes. The nearest resident is located approximately 50 feet to the west of the main building (Ref. Nos. 1, 26). Figures 1 and 2 show a Site Location Map and Site Map, respectively.

Flags Incorporated, a manufacturer of metal surgical supplies, was privately owned by Mr. Alvin Ginsberg (now deceased), and operated from 1945 to 1985. Waste generated on site included degreasing residues, generated during machine maintenance operations. This waste was deposited onto on-site soils at a rate of 1 quart to 1 gallon per year, for 40 years. In December 1984, following an on-site inspection by the New Jersey Department of Environmental Protection (NJDEP), the facility was ordered to immediately cease this method of disposal. Subsequently, following the evaporation of the liquid components of the oil sludge, the facility was ordered to dispose the solid residue with the trash. As a result of this prior disposal, a 1 cubic yard area of contaminated soil was formed. During the same inspection it was also discovered that the facility was discharging non-contact cooling water into an unlined diked drainage area located along the southern perimeter of the site without a New Jersey Pollution Discharge Elimination System (NJPDES) permit. The facility discontinued this practice in April 1985. Metal chips produced during the manufacturing process were either disposed of with the trash, or sold to a scrap dealer and transported off site. Other solvents used on site include lubricating oil, trichloroethylene, nitric, muriatic, sulfuric, and mineral acids, which were used to soak the metal sheets during manufacturing. These solvents, which were stored in their original containers, were allowed to evaporate in a storage room located within the main building following their use.

Soil samples were collected in April and May 1985, by the NJDEP, and analyzed by S.R. Analytical Inc. in accordance with the Environmental Cleanup Responsibility Act (ECRA) guidelines outlined by the NJDEP. One soil sample was collected from the diked drainage area and analyzed for organic compounds only. No organic compounds were detected. Two soil samples were collected from the oil sludge disposal area and were also analyzed for organic compounds. Analyses of these samples revealed the presence of tetrachloroethylene at a concentration of 2.6 parts per million (ppm). On May 20, 1985, the contaminated soil was excavated and transported off site under I.D. 27, as nonhazardous waste. This area was subsequently re-filled with clean sand. The number of people previously employed by Flags Inc., is unknown. The diked drainage area was also removed at an unknown date (Ref. Nos. 1, 2, 4, 8, 9, 26).

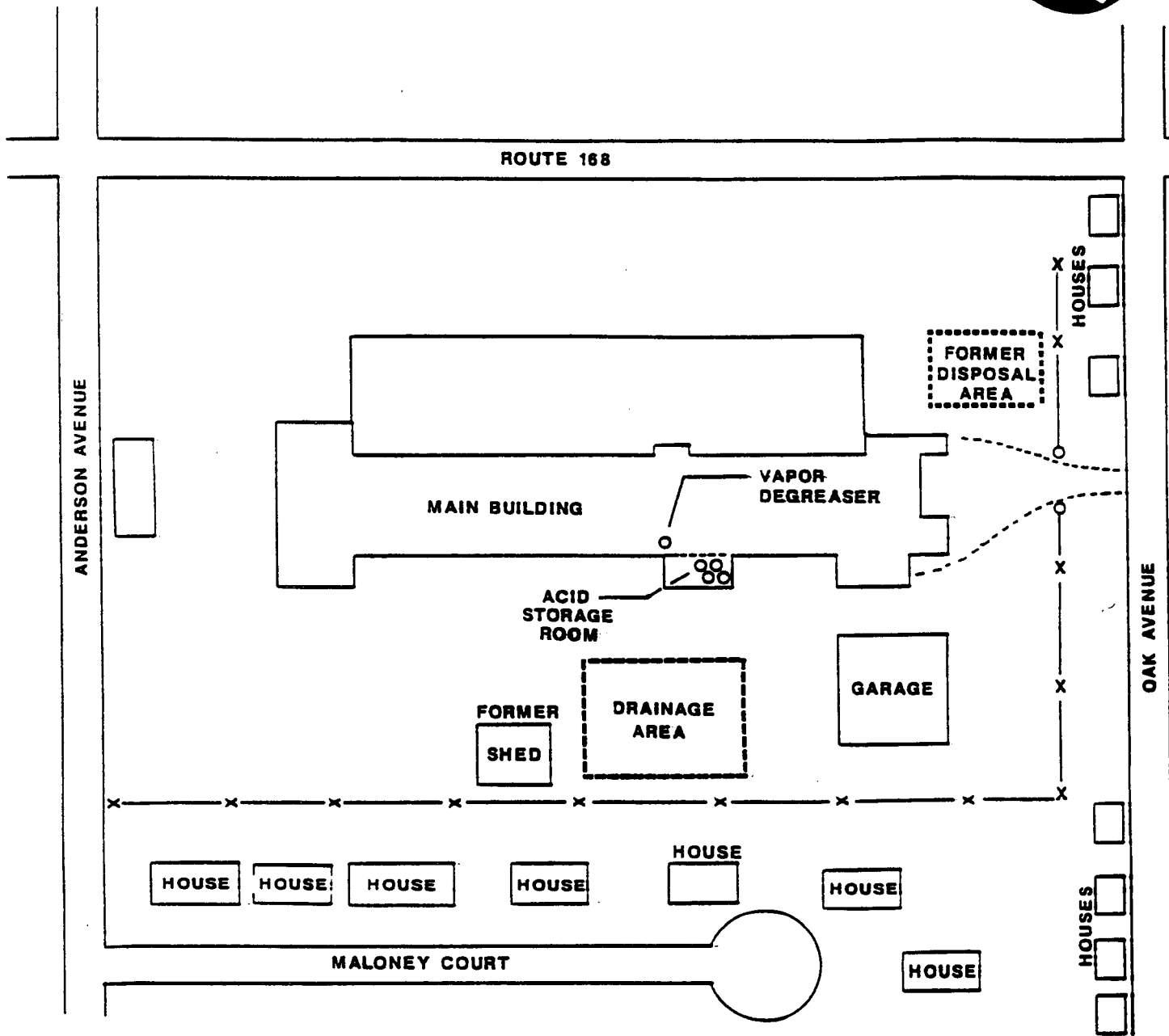
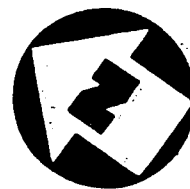


SITE LOCATION MAP
FLAGS INC., BELLMAWR, N.J.

SCALE : 1" = 2000'

FIGURE 1





SITE MAP
FLAGS INC.,
BELLMAWR, N.J.

(NOT TO SCALE)

FIGURE 2



SITE SUMMARY AND RECOMMENDATIONS

In early 1986, the site was sold to Orthopli Inc., a manufacturer of dental supplies. Orthopli never occupied the site. By the latter part of 1986, the site was then sold to Crackerbarrel Inc., a distributor of both prefabricated and unassembled wooden display cases used for various arts and crafts shows. The main building was expanded to its present size and currently employs 3 people. The site is now privately owned by Mr. Blaine Purnell, president of Crackerbarrel Inc. No hazardous wastes are currently generated on site. On February 27, 1991, six surface and four subsurface soil samples were collected by NUS Corporation Region 2 FIT personnel. These samples were analyzed for volatile and semivolatile organic compounds, polychlorinated biphenyls (PCBs), and pesticides by Ceimic Corporation, and inorganic compounds, excluding cyanide, were analyzed by Natural Resources Laboratories, in accordance with the U.S. Environmental Protection Agency's Contract Laboratory Program. Analysis of these samples did not reveal the presence of any volatile organic compound or PCB above the Contract Required Quantitation Limit (CRQL). However, semivolatile organic, and inorganic compounds were detected at notable concentrations above the CRQL, which may be attributable to the site (Ref. Nos. 26, 32).

Based on the above background information, a recommendation for an **EXPANDED SITE INSPECTION (ESI)** is designated for the Flags Incorporated site. Future work at the site should include the installation and sampling of upgradient and downgradient groundwater monitoring wells to further characterize the aquifer of concern, and to further assess the potential for groundwater contamination. Off-site soil sampling of nearby residential properties should also be conducted to further assess the potential for off-site migration of contaminants.

SITE ASSESSMENT REPORT: SITE INSPECTION

PART I: SITE INFORMATION

1. Site Name/Alias Flags Inc./Amko Mfg./Crackerbarrel Inc.
Street 41 Oak Avenue
City Bellmawr State NJ Zip 08031
2. County Camden County Code 007 Cong. Dist. 01
3. EPA ID No. NJD002352300
4. Block No. 838 Lot No. 7, 8, 9
5. Latitude 39° 52' 09" N Longitude 75° 04' 55" W
USGS Quad. Runnemedede, New Jersey
6. Owner Blaine S. Purnell Tel. No. (609) 429-8106
Street 527 Narberth Avenue
City Haddonfield State NJ Zip 08033
7. Operator Crackerbarrel Inc. Tel. No. (609) 931-1666
Street 41 Oak Avenue
City Bellmawr State NJ Zip 08031
8. Type of Ownership
☒ Private ☐ Federal ☐ State
☐ County ☐ Municipal ☐ Unknown ☐ Other _____
9. Owner/Operator Notification on File
☐ RCRA 3001 Date _____ ☐ CERCLA 103c Date _____
☒ None ☐ Unknown
10. Permit Information
- | Permit | Permit No. | Date Issued | Expiration Date | Comments |
|-------------|------------|-------------|-----------------|----------|
| <u>None</u> | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
11. Site Status
☒ Active ☐ Inactive
12. Years of Operation 1945 to 1985

13. Identify the types of waste sources (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.

(a) Waste Sources

Waste Unit No.	Waste Source Type	Facility Name for Unit
1	<u>Contaminated Soil</u>	<u>Contaminated Soil</u>
2	<u>Surface Impoundment</u>	<u>Diked Drainage Area</u>
3	<u>Containers</u>	<u>Storage Room</u>

(b) Other Areas of Concern

Identify any miscellaneous spills, dumping, etc. on site; describe the materials and identify their locations on site.

Another area of concern consists of a 1,000-gallon underground storage tank. The exact location of this tank, however, is unknown. The tank holds No. 2 fuel oil. In 1984, a Petro-Tite leak test was performed, and the results have revealed that the tank was in sound condition. Since fuel oil is not regulated under CERCLA, this tank will not be further evaluated in this report. (Ref. Nos. 1, 4).

14. Information available from

Contact Amy Brochu Agency U.S. EPA Tel. No. (908) 906-6802
Preparer Joseph G. Filosa Agency Halliburton NUS Environmental Corp. Region 2 FIT
Date 9/6/91

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 1 - Contaminated Soil

Source Type

<u> </u>	Landfill	<u> X </u>	Contaminated Soil
<u> </u>	Surface Impoundment	<u> </u>	Pile (Specify type: chemical, junk, trash, tailing, etc.)
<u> </u>	Drums	<u> </u>	Land Treatment
<u> </u>	Tanks/Containers	<u> </u>	Other (Specify <u> </u>)

Description:

This unit consists of contaminated soil. From 1945 to 1983, the facility disposed, onto on-site soil, degreasing sludges generated during the facility's machine maintenance operations. This oil sludge was deposited in an area located in the northeastern section of the site, at a rate of 1 quart to 1 gallon per year. In December 1984, the NJDEP ordered the facility to cease this method of disposal, and following the evaporation of the liquid components, to dispose the solid residues with the trash. In May 1985, the soil where the disposal took place was completely excavated and the area was re-filled with clean sand. The soil was then removed off site under ID 27, as nonhazardous waste.

Hazardous Waste Quantity

The total volume of contaminated soil excavated in 1985 was 1 cubic yard.

Hazardous Substances/Physical State

The only hazardous substance detected within the soil consisted of tetrachloroethylene at a concentration of 2.6 parts per million (ppm). The physical state consisted of solids and sludges. Currently, there are no hazardous substances stored on site. Analysis of subsurface soil sample NJHX-S7, collected around the former oil sludge disposal area revealed the presence of di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene, all at an estimated concentration of 380 ug/kg. Further analysis of subsurface soil sample NJHX-S7 collected around the oil disposal area revealed the presence of aluminum, arsenic, chromium, lead, vanadium, and zinc, at concentrations of 11,800 mg/kg, 6.8 mg/kg estimated, 24.4 mg/kg, 5.1 mg/kg, 31.6 mg/kg, and 18 mg/kg.

Analysis of subsurface soil sample NJHX-S3 and duplicate soil sample NJHX-S4 collected from the former oil sludge disposal area revealed notable concentrations of several inorganic compounds. Aluminum, arsenic, barium, chromium, lead, nickel, vanadium and zinc were detected at concentrations of 14,900 mg/kg, 6.2 mg/kg estimated, 81.2 mg/kg, 24 mg/kg, 10.7 mg/kg, 10.2 mg/kg, 33.1 mg/kg, and 41.8 mg/kg, respectively.

Analysis of subsurface soil sample NJHX-S5 collected around the oil sludge disposal area revealed the presence of aluminum, arsenic, chromium, lead, vanadium, and zinc at concentrations of 11,100 mg/kg, 5.3 mg/kg estimated, 22.6 mg/kg, 5.3 mg/kg, 29.5 mg/kg, and 17.4 mg/kg, respectively.

Hazardous Substances/Physical State (Cont'd)

Analysis of surface soil sample NJHX-S6 collected along the northeast corner of the property revealed the presence of aluminum, arsenic, barium, chromium, lead, manganese, mercury, silver, vanadium, and zinc, at concentrations of 9,270 mg/kg, 7.8 mg/kg estimated, 50.7 mg/kg, 17.8 mg/kg, 31.2 mg/kg estimated, 204 mg/kg, .13 mg/kg, estimated 2.7 mg/kg, 21.7 mg/kg, and 32.1 mg/kg, respectively.

Ref. Nos. 1, 2, 8, 9, 26, 32

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 2 - Diked Drainage Area

Source Type

<input type="checkbox"/> Landfill	<input type="checkbox"/> Contaminated Soil
<input checked="" type="checkbox"/> Surface Impoundment	<input type="checkbox"/> Pile (Specify type: chemical, junk, trash, tailing, etc.)
<input type="checkbox"/> Drums	<input type="checkbox"/> Land Treatment
<input type="checkbox"/> Tanks/Containers	<input type="checkbox"/> Other (Specify <u> </u>)

Description:

This unit consists of a diked drainage area located along the southern perimeter of the site. This area received noncontact cooling water from the degreasing unit located within the main building. In 1985, this practice was stopped when the facility was informed that this practice could not be conducted unless the facility applied for a New Jersey Pollution Discharge Elimination System (NJPDES) permit. The dike was removed at an unknown date. Currently, no discharges to the groundwater occur at the site.

Hazardous Waste Quantity

The amount of noncontact cooling water discharged is unknown.

Hazardous Substances/Physical State

In 1985, soil samples collected by S.R. Analytical Inc. did not reveal the presence of any volatile organic compounds. Analysis of soil sample NJHX-S2 collected from the former drainage area, revealed the presence of dieldrin, aluminum, arsenic, barium, chromium, lead, manganese, nickel, silver, vanadium, and zinc at concentrations of 30 ug/kg estimated, 11,900 mg/kg, 7.4 mg/kg estimated, 67.4 mg/kg, 21 mg/kg, 60.2 mg/kg estimated, 159 mg/kg, 11.6 mg/kg, 7.4 mg/kg, 26.3 mg/kg, and 67.8 mg/kg, respectively.

Analysis of surface soil sample NJHX-S8, collected along the southern perimeter of the site revealed the presence of aluminum, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc at concentrations of 2,420 mg/kg, 2.7 mg/kg estimated, 4.7 mg/kg, 688 mg/kg, 37.8 mg/kg estimated, 34.4 mg/kg, 193 mg/kg, and 206 mg/kg, respectively.

Analysis of soil sample NJHX-S9, also collected along the southern perimeter of the site, revealed the presence of aluminum, arsenic, barium, chromium, copper, lead, manganese, nickel, silver, vanadium, and zinc at concentrations of 10,200 mg/kg, 7.1 mg/kg estimated, 77.3 mg/kg, 21.6 mg/kg, 82.3 mg/kg, 134 mg/kg estimated, 196 mg/kg, 12.7 mg/kg, 73.1 mg/kg, 25.3 mg/kg, and 147 mg/kg, respectively.

Analysis of soil sample NJHX-S10 collected along the southwestern corner of the property revealed the presence of aluminum, arsenic, chromium, lead, manganese, mercury, vanadium, and zinc, at concentrations of 7,800 mg/kg, 11.3 mg/kg estimated, 19.3 mg/kg, 58.5 mg/kg estimated, 158 mg/kg, 13 mg/kg estimated, 22.3 mg/kg, and 71.8 mg/kg, respectively.

Ref. Nos. 1, 2, 8, 9, 26, 32

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 3 - Container Storage Room

Source Type

<input type="checkbox"/> Landfill	<input type="checkbox"/> Contaminated Soil
<input type="checkbox"/> Surface Impoundment	<input type="checkbox"/> Pile (Specify type: chemical, junk, trash, tailing, etc.)
<input type="checkbox"/> Drums	<input type="checkbox"/> Land Treatment
<input checked="" type="checkbox"/> Tanks/Containers	<input type="checkbox"/> Other (Specify <u> </u>)

Description:

This unit consists of a storage room within the main building itself. This room is located along the southern perimeter of the building at the discharge point to the former drainage area. The room was used to store raw materials and for soaking the metal instruments in acid during manufacturing. The acids were stored in their original containers and mixed with water to form diluted solutions. The mixtures were either used up or allowed to evaporate in this room in accordance with NJDEP instructions. The degreasing oil, initially deposited onto the soil, was also evaporated in this room prior to disposal of the solid residues with the trash.

Hazardous Waste Quantity

The quantity of materials and waste previously stored within this room is unknown.

Hazardous Substances/Physical State

The substances previously stored within this room consisted of trichloroethylene, nitric, muriatic, sulfuric and mineral acids, as well as various lubricating oils. Currently, this room, as well as the rest of the building, is used to store wooden displays prior to distribution.

PART III: SAMPLING RESULTS

EXISTING ANALYTICAL DATA

In April and May of 1985, soil samples were collected from the oil sludge disposal area, and the diked noncontact cooling water discharge area. These samples were collected by the NJDEP, and analyzed by S.R. Analytical Inc., for volatile organic compounds only. No volatile organic compounds were detected in samples collected from the noncontact cooling water discharge area. However, analyses of soil samples collected from the oil sludge disposal area at a depth of 2 feet beneath the surface revealed the presence of tetrachloroethylene at a concentration of 2.6 ppm. The same sample collected at a depth of 4 feet beneath the surface did not reveal the presence of any volatile organic compounds (Ref. Nos. 8, 9).

SITE INSPECTION RESULTS

NUS Corporation Region 2 FIT conducted sampling at the Flags Incorporated site on February 27, 1991. A total of 10 environmental samples were collected, and included six surface and four subsurface soil samples. Table 1 presents a summary of the analytical data. Figure 3 provides a Sampling Location Map. Samples were analyzed under the Contract Laboratory Program (CLP) for Target Compound List (TCL) contaminants, excluding cyanide. The organic analysis was conducted by Ceimic Corporation, while inorganic analysis was conducted by Natural Resources Laboratories.

Soil samples were collected to determine whether a release of contaminants to the soil, which can be attributed to the site has occurred, and to determine the potential for groundwater contamination. Groundwater and surface water samples were not collected as no monitoring wells or streams are located on, or adjacent to the site. A complete representation of the analytical results can be found in Reference No. 32.

SITE NAME: FLAGS INCORPORATED
TDD#: 02-9011-22
SAMPLING DATE: 2/27/91
EPA CASE NO.: 15941 LAB: CEIMIC

TABLE 1
SITE INSPECTION SAMPLE RESULTS
FLAGS INCORPORATED
BELLMAWR, NEW JERSEY

VOLATILES

Sample ID No.	NJHX-S1	NJHX-S2(MS/MSD)	NJHX-S3	NJHX-S4(DUP)	NJHX-S5	NJHX-S6	NJHX-S7	NJHX-S8	NJHX-S9	NJHX-S10	NJHX-RIN1	NJHX-RIN2	NJHX-RIN3
Traffic Report No.	BHE04	BHE05	BHE06	BHE07	BHE08	BHE09	BHE10	BHE11	BHE12	BHE13	BHE14	BHE15	BHE16
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor	1	1	1	1	1	1	1	1	1	1	1	1	1
Percent Moisture	9	16	14	14	14	18	13	6	21	17	--	--	--

Chloromethane											J	J	
Bromomethane											J		
Vinyl Chloride													
Chloroethane													
Methylene Chloride											B	B	B
Acetone											12 E	J	10 E
Carbon Disulfide													
1,1-Dichloroethene													
1,1-Dichloroethane													
Trans-1,2-Dichloroethene (total)													
Chloroform													
1,2-Dichloroethane													
2-Butanone													
1,1,1-Trichloroethane													
Carbon Tetrachloride													
Vinyl Acetate													
Bromodichloromethane													
1,2-Dichloropropane													
cis-1,3-Dichloropropene													
Trichloroethene													
Dibromochloromethane													
1,1,2-Trichloroethane													
Benzene													
trans-1,3-Dichloropropene													
Bromoform													
4-Methyl-2-Pentanone													
2-Hexanone													
Tetrachloroethene													
1,1,2,2-Tetrachloroethane													
Toluene													
Chlorobenzene													
Ethylbenzene													
Styrene													
Xylenes (Total)													

NOTES:

Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of the material
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

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Rev. No. 0

SITE NAME: FLAGS INCORPORATED
TDD#: 02-9011-22
SAMPLING DATE: 2/27/91
EPA CASE NO.: 15941 LAB: CEIMIC

TABLE I
SITE INSPECTION SAMPLE RESULTS
FLAGS INCORPORATED
BELLMAWR, NEW JERSEY
(cont'd)

SEMI-VOLATILES													
Sample ID No.	NJHX-S1	NJHX-S2(MS/MSD)	NJHX-S3	NJHX-S4(DUP)	NJHX-S5	NJHX-S6	NJHX-S7	NJHX-S8	NJHX-S9	NJHX-S10	NJHX-RIN1	NJHX-RIN2	NJHX-RIN3
Traffic Report No.	BHE04	BHE05	BHE06	BHE07	BHE08	BHE09	BHE10	BHE11	BHE12	BHE13	BHE14	BHE15	BHE16
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1	1	1	1	1	1	1	1	1	1	1	1	1
Percent Moisture	9	17	15	16	15	18	13	8	21	17	--	--	--

Phenol
bis(2-Chloroethyl)ether
2-Chlorophenol
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Benzyl alcohol
1,2-Dichlorobenzene
2-Methylphenol
bis(2-Chloroisopropyl)ether
4-Methylphenol
N-Nitroso-di-n-dipropylamine
Hexachloroethane
Nitrobenzene
Isophorone
2-Nitrophenol
2,4-Dimethylphenol
Benzoic acid
bis(2-Chloroethoxy)methane
2,4-Dichlorophenol
1,2,4-Trichlorobenzene
Naphthalene
4-Chloroaniline
Hexachlorobutadiene
4-Chloro-3-Methylphenol
2-Methylnaphthalene
Hexachlorocyclopentadiene
2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
2-Chloronaphthalene
2-Nitroaniline
Dimethylphthalate
Acenaphthylene
2,6-Dinitrotoluene
3-Nitroaniline
Acenaphthene
2,4-Dinitrophenol
4-Nitrophenol
Dibenzofuran
2,4-Dinitrotoluene
Diethylphthalate
4-Chlorophenyl-phenyl ether
Fluorene
4-Nitroaniline
4,6-Dinitro-2-methylphenol
N-nitrosodiphenylamine
4-Bromophenyl-phenyl ether
Hexachlorobenzene

SITE NAME: FLAGS INCORPORATED
 TDD#: 02-9011-22
 SAMPLING DATE: 2/27/91
 EPA CASE NO.: 15941 LAB: CEIMIC

TABLE I
 SITE INSPECTION SAMPLE RESULTS
 FLAGS INCORPORATED
 BELLMAR, NEW JERSEY
 (cont'd)

SEMI-VOLATILES													
Sample ID No.	NJHX-S1	NJHX-S2(MS/MSD)	NJHX-S3	NJHX-S4(DUP)	NJHX-S5	NJHX-S6	NJHX-S7	NJHX-S8	NJHX-S9	NJHX-S10	NJHX-RIN1	NJHX-RIN2	NJHX-RIN3
Traffic Report No.	BHE04	BHE05	BHE06	BHE07	BHE08	BHE09	BHE10	BHE11	BHE12	BHE13	BHE14	BHE15	BHE16
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1	1	1	1	1	1	1	1	1	1	1	1	1
Percent Moisture	9	17	15	16	15	18	13	8	21	17	--	--	--
Pentachlorophenol													
Phenanthrene	J	J								J			
Anthracene													
Di-n-butylphthalate	J								J				
Fluoranthene	J	J						J	J	J			
Pyrene	J	J						J	J	J			
Butylbenzylphthalate													
3,3'-Dichlorobenzidine													
Benzo(a)anthracene	J	J							J				
Chrysene	J	J						J	J				
bis(2-Ethylhexyl)phthalate	J	J						J	J				
Di-n-octylphthalate							380 E						
Benzo(b)fluoranthene	J	J					380 E		J				
Benzo(k)fluoranthene	J	J					380 E		J				
Benzo(a)pyrene	J						380 E		J				
Indeno(1,2,3-cd)pyrene	J						380 E		J				
Dibenz(a,h)anthracene							380 E						
Benzo(g,h,i)perylene	J						380 E		J				

NOTES:

Blank space - compound analyzed for but not detected
 B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
 E - estimated value
 J - estimated value, compound present below CRQL but above IDL
 R - analysis did not pass EPA QA/QC
 N - Presumptive evidence of the presence of the material
 NR - analysis not required
 Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: FLAGS INCORPORATED
TDD#: 02-9011-22
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TABLE I
SITE INSPECTION SAMPLE RESULTS
FLAGS INCORPORATED
BELLMAWR, NEW JERSEY
(cont'd)

PESTICIDES	NJHX-S1	NJHX-S2(MS/MSD)	NJHX-S3	NJHX-S4(DUP)	NJHX-S5	NJHX-S6	NJHX-S7	NJHX-S8	NJHX-S9	NJHX-S10	NJHX-RIN1	NJHX-RIN2	NJHX-RIN3
Sample ID No.	BHE04	BHE05	BHE06	BHE07	BHE08	BHE09	BHE10	BHE11	BHE12	BHE13	BHE14	BHE15	BHE16
Traffic Report No.	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Matrix	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Units	1	1	1	1	1	1	1	1	1	1	1	2	1
Dilution Factor/GPC Cleanup (Y)	9	17	15	16	15	18	13	8	21	17	--	--	--
Percent Moisture													
alpha-BHC													
beta-BHC													
delta-BHC													
gamma-BHC (Lindane)													
Heptachlor													
Aldrin											21 E		
Heptachlor epoxide													
Endosulfan I													
Dieldrin		30 E											
4,4'-DDE	J									240 E			
Endrin													
Endosulfan II													
4,4'-DDD													
Endosulfan sulfate													
4,4'-DDT	49 E								420 E	26 E			
Methoxychlor													
Endrin ketone													
alpha-Chlordane													
gamma-Chlordane													
Toxaphene													
Aroclor-1016													
Aroclor-1221													
Aroclor-1232													
Aroclor-1242													
Aroclor-1248													
Aroclor-1254													
Aroclor-1260													

NOTES:

Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of the material
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: FLAGS INCORPORATED
 ID#: 02-9011-22
 SAMPLING DATE: 2/27/91
 EPA CASE NO.: 15941
 LAB NAME: NATURAL RESOURCES

TABLE I
 SITE INSPECTION SAMPLE RESULTS
 FLAGS INCORPORATED
 BELLMAWR, NEW JERSEY
 (cont'd)

INORGANICS	NJHX-S1	NJHX-S2(MS/MSD)	NJHX-S3	NJHX-S4(DUP)	NJHX-S5	NJHX-S6	NJHX-S7	NJHX-S8	NJHX-S9	NJHX-S10	NJHX-RIN1	NJHX-RIN2	NJHX-RIN3
Sample ID No.	MBFQ01	MBFQ02	MBFQ03	MBFQ04	MBFQ05	MBFQ06	MBFQ07	MBFQ08	MBFQ09	MBFQ10	MBFQ11	MBFQ12	MBFQ13
Traffic Report No.	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Matrix	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/L	ug/L	ug/L
Units													
Dilution Factor													
Aluminum	4700	11900	14100	14900	11100	9270	11800	2420	10200	7800			
Antimony													
Arsenic	J	7.4 E	6 E	6.2 E	5.3 E	7.8 E	6.8 E	2.7 E	7.1 E	11.3 E			
Barium	J	67.4	72.3	81.2	J	50.7	J	J	77.3	J			
Beryllium	J	J	J	J	J	J	J	J	J	J			
Cadmium	1.5							4.7	1.7				
Calcium	1210	J	J	J	J	J	J	1450	1290	J			
Chromium	19.9	21	24	23.3	22.6	17.8	24.4	28.8	21.6	19.3			
Cobalt	J	J	J	J	J	J	J	J	J	J			
Copper	260	29.5	20.6	23.3	J	16	J	688	82.3	17.2			
Iron	9150	16000	21800	19300	17800	12200	19700	5430	14200	12500		J	
Lead	68.4 E	60.2 E	10.7	9.4	5.3	31.2 E	5.1	37.8 E	134 E	58.5 E			
Magnesium	1450	J	1460	1520	1310	J	1290	J	J	J			
Manganese	72.2	159	146	191	71.1	204	111	32.8	196	158			
Mercury						0.13 E				0.13 E			
Nickel	19.9	11.6	J	10.2	J	J	J	34.4	12.7	J			
Potassium	J	J	J	J	1740	J	1870	J	J	1340			
Selenium									J				
Silver	173	7.4	J	J		2.7		193	73.1	3			
Sodium	J												
Thallium				J					J		J		
Vanadium	19.5	26.3	33.1	30.9	29.5	21.7	31.6	J	25.3	22.3			
Zinc	97.8	67.8	37.6	41.8	17.4	32.1	18	206	147	71.8			

NOTES:

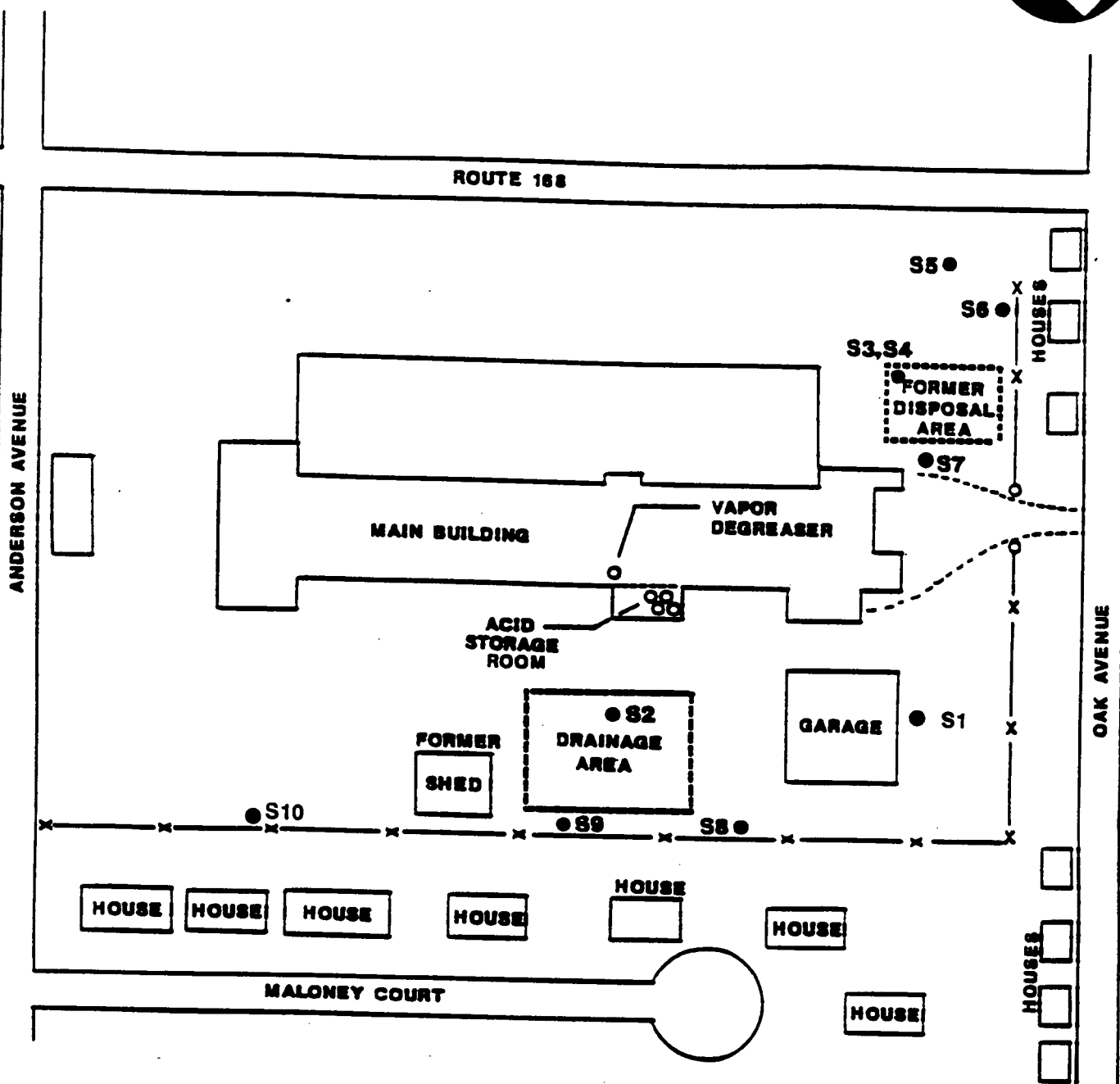
Blank space - compound analyzed for but not detected

E - estimated value

J - estimated value, compound present below CROL but above IOL

R - analysis did not pass EPA QA/QC

NR - analysis not required



LEGEND

- SOIL SAMPLE LOCATION
- ALL SAMPLE NUMBERS ARE PRECEDED BY NJHX

SAMPLE LOCATION MAP
FLAGS INC.,
BELLMAWR, N.J.
(NOT TO SCALE)

FIGURE 3



PART IV: HAZARD ASSESSMENT

GROUNDWATER ROUTE

1. Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence.

There is a moderate potential for a release of contaminants to the groundwater at this site. Although degreaser oil was deposited onto the soil, the area of oil disposal totaling 1 cubic yard was excavated in 1985. The amount of oil disposed of on site adds up to a maximum volume of 40 gallons, at the rate of 1 quart to 1 gallon per year. Soil samples collected by S.R. Analytical Inc. from the oil disposal area in 1985 revealed the presence of tetrachloroethylene at a concentration of 2.6 ppm. This was the only volatile organic compound detected. However, this concentration is below the Practical Quantitation Limit outlined by NJDEP.

Analyses of surface and subsurface soil samples collected on site by Region 2 FIT on February 27, 1991 revealed the presence of semivolatile organic and inorganic compounds at notable concentrations above the CRQL. Analysis of soil sample NJHX-S1 has revealed the presence of aluminum, cadmium, chromium, lead, nickel, silver, vanadium, and zinc at concentrations of 4,700 mg/kg, 1.5 mg/kg, 19.9 mg/kg, 68.4 mg/kg estimated, 19.9 mg/kg, 173 mg/kg, 19.5 mg/kg, and 97.8 mg/kg, respectively. Analysis of soil sample NJHX-S2 has revealed the presence of aluminum, arsenic, barium, chromium, lead, manganese, nickel, silver, vanadium, and zinc at concentrations of 11,900 mg/kg, 7.4 mg/kg estimated, 67.4 mg/kg, 21 mg/kg, 60.2 mg/kg estimated, 159 mg/kg, 11.6 mg/kg, 7.4 mg/kg, 26.3 mg/kg, and 67.8 mg/kg, respectively.

Analysis of subsurface soil samples NJHX-S3 and NJHX-S4 has revealed concentrations of several inorganic compounds. Aluminum, arsenic, barium, chromium, lead, nickel, vanadium and zinc, were detected at concentrations of 14,900 mg/kg, 6.2 mg/kg estimated, 81.2 mg/kg, 24 mg/kg, 10.7 mg/kg, 10.2 mg/kg, 33.1 mg/kg, and 41.8 mg/kg, respectively. Analysis of subsurface soil sample NJHX-S5 has revealed the presence of aluminum, arsenic, chromium, lead, vanadium, and zinc at concentrations of 11,100 mg/kg, 5.3 mg/kg estimated, 22.6 mg/kg, 5.3 mg/kg, 29.5 mg/kg, and 17.4 mg/kg, respectively. Analysis of soil sample NJHX-S6 has revealed the presence of aluminum, arsenic, barium, chromium, lead, manganese, mercury, silver, vanadium, and zinc, at concentrations of 9,270 mg/kg, 7.8 mg/kg estimated, 50.7 mg/kg, 17.8 mg/kg, 31.2 mg/kg estimated, 204 mg/kg, .13 mg/kg estimated, 2.7 mg/kg, 21.7 mg/kg, and 32.1 mg/kg, respectively.

Analysis of subsurface soil sample NJHX-S7 has revealed the presence of di-n-octyl phthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno (1,2,3-cd)pyrene, dibenz(a,h,)anthracene, and benzo(g,h,i)perylene, all at an estimated concentration of 380 ug/kg. Inorganic analysis has revealed the presence of aluminum, arsenic, chromium, lead, vanadium, and zinc at concentrations of 11,800 mg/kg, 6.8 mg/kg estimated, 24.4 mg/kg, 5.1 mg/kg, 31.6 mg/kg, and 18 mg/kg, respectively. Analysis of soil sample NJHX-S8 has revealed the presence of aluminum, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc at concentrations of 2,420 mg/kg, 2.7 mg/kg estimated, 4.7 mg/kg, 28.8 mg/kg, 688 mg/kg, 37.8 mg/kg estimated, 34.4 mg/kg, 193 mg/kg, and 206 mg/kg, respectively. Analysis of soil sample NJHX-S9 has revealed the presence of aluminum, arsenic, barium, chromium, copper, lead, manganese, nickel, silver, vanadium, and zinc at concentrations of 10,200 mg/kg, 7.1 mg/kg estimated, 77.3 mg/kg, 21.6 mg/kg, 82.3 mg/kg, 134 mg/kg estimated, 196 mg/kg, 12.7 mg/kg, 73.1 mg/kg, 25.3 mg/kg, and 147 mg/kg, respectively. Analysis of soil sample NJHX-S10 has revealed the presence of aluminum, arsenic, chromium, lead, manganese, mercury, vanadium, and zinc at concentrations of 7,800 mg/kg, 11.3 mg/kg estimated, 19.3 mg/kg, 58.5 mg/kg estimated, 158 mg/kg, .13 mg/kg estimated, 22.3 mg/kg, and 71.8 mg/kg, respectively.

Although the underlying aquifer systems within this area are overlain by a confining layer; groundwater contamination within the upper unconfined aquifer appears likely. These compounds may be attributable to the site as a result of past on site activities such as the disposal of degreasing sludges, the discharge of noncontact cooling water directly to the upper aquifer, and the accumulation of inorganic wastes as by products of the facility's manufacturing process.

Ref. Nos. 1, 8, 9, 11, 32

2. **Describe the aquifer of concern; include information such as depth, thickness, geologic composition, areas of karst terrain, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.**

The aquifer of concern is the Cretaceous age Potomac-Raritan-Magothy aquifer system, which is the basal formation within the Atlantic Coastal Plain Physiographic province. This aquifer system is separated into three lithologically distinct units to the north, but is considered one unit of alternating aquifers and confining beds to the south. This aquifer system consists of fluvial-deltaic sediments consisting of clay, silt, sand, and gravel. The Potomac-Raritan-Magothy aquifer system possesses a permeability ranging from 10^2 to 10^{-7} cm/sec, and has a regional stratigraphic thickness of 350 feet. It is from this aquifer that local wells draw their greatest yields.

Overlying the Potomac-Raritan-Magothy aquifer lies the Cretaceous age Merchantville Formation, which consists of dark-grey to greyish black micaceous clay interbedded with silt and glauconitic sand towards the upper contact. The Merchantville Formation is considered to be a leaky confining bed and is used as a minor aquifer, which is hydraulically connected to the underlying aquifer system. The Merchantville Formation possesses a permeability of 10^{-3} to 10^{-6} cm/sec. Overlying the Merchantville Formation lies the Woodbury Clay, which consists of greyish-black massive micaceous clay interbedded with silt. This unit possesses a permeability of 10^{-7} to 10^{-10} cm/sec, and along with the Merchantville formation, has a regional stratigraphic thickness of 100 feet. The Woodbury Clay is considered a major confining unit between the basal aquifer systems and the overlying unconsolidated Pleistocene age alluvial deposits, which overlie the Woodbury Clay. These unconsolidated deposits have a regional stratigraphic thickness of 10 feet. Groundwater flow within this area tends to follow the regional dip of the beds, generally in an easterly direction.

Ref. Nos. 11, 20, 31

3. **Is a designated well head protection area within 4 miles of the site?**

There are currently no well head protection areas in New Jersey.

Ref. No. 15

4. **What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?**

The lowest point of oil sludge disposal prior to excavation of the soil was 4 feet beneath the surface. The highest seasonal level of the water table is estimated to be 10 feet beneath the surface. Therefore, the depth to the water table from the lowest point of waste disposal is six feet. However, the Woodbury Clay acts as a confining layer between the upper unconsolidated deposits and the underlying aquifer systems.

Ref. Nos. 11, 20

5. **What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the aquifer of concern?**

The permeability of the Woodbury Clay is estimated to be 10^{-7} to 10^{-10} cm/sec.

Ref. No. 31

6. What is the distance to and depth of the nearest well that is currently used for drinking purposes?

The nearest well that is currently used for drinking purposes is located approximately 0.3 mile southeast from the site. This well has a depth of 32 feet.

Ref. Nos. 12, 14

7. If a release to groundwater is observed or suspected, determine the number of people that obtain drinking water from wells that are documented or suspected to be located within the contamination boundary of the release.

There are no wells that are documented or suspected to be within any contamination boundary, attributable to the site.

Ref. Nos. 1, 8, 9, 14

8. Identify the population served by wells located within 4 miles of the site that draw from the aquifer of concern.

<u>Distance</u>	<u>Population</u>
0 - $\frac{1}{4}$ mi	0
$>\frac{1}{4}$ - $\frac{1}{2}$ mi	4
$>\frac{1}{2}$ - 1 mi	13,014
>1 - 2 mi	51,998
>2 - 3 mi	73,297
>3 - 4 mi	36,004

State whether groundwater is blended with surface water or with groundwater from other wells. Also provide an explanation on how each ring population was determined.

Groundwater supplied to the above populations is blended with water received from other wells within the various municipalities. These wells are located within a 4-mile radius of the site. The population within each distance ring was determined by obtaining the population served by each water company with wells located within each ring.

Ref. Nos. 12, 13, 14, 18

9. Identify uses of groundwater within 4 miles of the site (i.e. private drinking source, municipal source, commercial, irrigation, unusable).

The uses of groundwater within 4 miles of the site include municipal, domestic, commercial, and industrial water supplies.

Ref. Nos. 12-16, 18

SURFACE WATER ROUTE

10. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence.

Although no surface water contamination has been documented as originating on site, a moderate potential for surface water contamination exists. Degreaser oil sludges were deposited onto the soil from 1945 to 1985, creating a 1 cubic yard area of contaminated soil. Although this area was excavated in 1985, analysis of surface and subsurface soil samples collected by Region 2 FIT on February 27, 1991 revealed the presence of semivolatile and volatile organic compounds at concentrations above the CRQL. The nearest surface water

is located approximately 0.3 mile east of the site in the direction of groundwater flow. It also appears that a hydraulic connection between the upper unconsolidated deposits and Little Timber Creek exists. Therefore, any off-site migration of contaminants may eventually reach the Little Timber Creek. Figure 4 shows the 15 mile Surface Water Pathway route.

Ref. Nos. 14, 21, 23, 32

11. Identify the nearest downslope surface water. If possible, include a description of possible surface drainage patterns from the site.

The nearest downslope surface water is Little Timber Creek, which is located approximately 0.3 mile east of the site. Little Timber Creek flows into the Big Timber Creek located approximately 3.5 miles downstream. Big Timber Creek ultimately flows into the Delaware River, located approximately 4 miles downstream.

Ref. Nos. 14, 21, 23

12. What is the distance to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.

The distance from the site to Little Timber Creek is approximately 0.3 mile.

Ref. No. 14

13. Determine the floodplain that the site is located within.

The site is located outside the 500-year flood plain of Little Timber Creek.

Ref. No. 22

14. Identify drinking water intakes in surface waters within 15 miles downstream of the site. For each intake identify: the distance from the point of surface water entry, population served, and stream flow at the intake location.

<u>Intake</u>	<u>Distance</u>	<u>Population Served</u>	<u>Flow (cfs)</u>
---------------	-----------------	--------------------------	-------------------

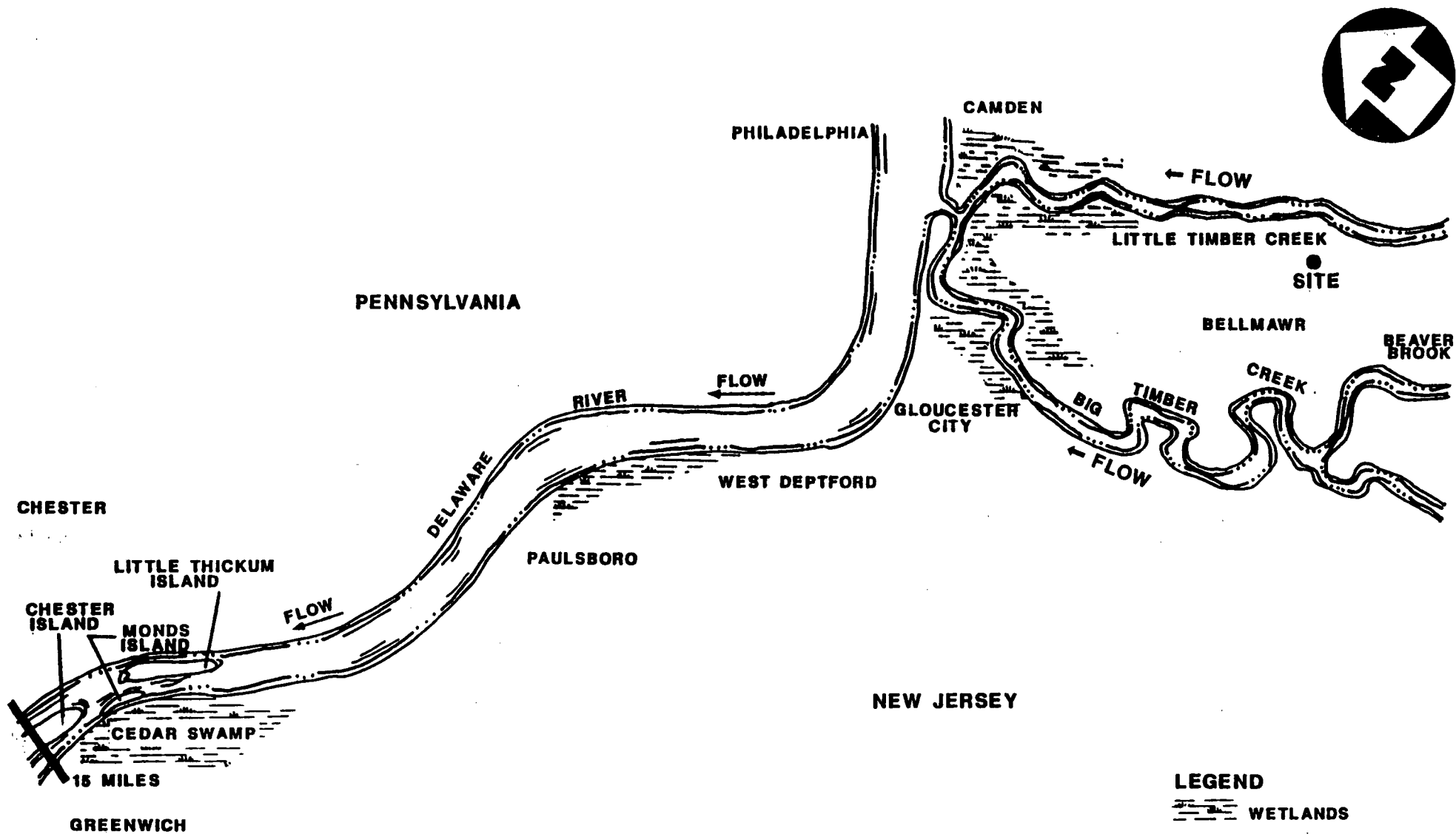
There are no surface water intakes located within 15 miles downstream from the site.

Ref. Nos. 14, 23

15. Identify fisheries that exist within 15 miles downstream of the point of surface water entry. For each fishery specify the following information:

<u>Fishery</u>	<u>Water Body Type</u>	<u>Flow (cfs)</u>	<u>Saline/Fresh/Brackish</u>
Big Timber Creek	Tributary	18	Brackish
Delaware River	Estuary	NA	Saline

Ref. Nos. 16, 23



SURFACE WATER PATHWAY
FLAGS INC., BELLMAWR, N.J.
 NOT TO SCALE

16. Identify sensitive environments that exist within 15 miles of the point of surface water entry. For each sensitive environment specify the following:

<u>Environment</u>	<u>Water Body Type</u>	<u>Flow (cfs)</u>	<u>Wetland Frontage (miles)</u>
Palustrine Forested Wetlands	Tributary	18	2.50
Palustrine Emergent Wetlands	Tributary	18	1.50
Riverine Open Water Wetlands	Estuary	NA	3.50
Tidal Flat Wetlands	Estuary	NA	5.75

Ref. Nos. 24, 25

17. If a release to surface water is observed or suspected, identify any intakes, fisheries, and sensitive environments from question Nos. 16-18 that are or may be located within the contamination boundary of the release.

Intake:

Fishery:

Sensitive Environment:

Since no release of contaminants to the surface water has ever been documented, no contamination boundaries have been formed that may affect intakes, fisheries, or sensitive environments within 15 miles of the site.

Ref. Nos. 1, 14, 17, 24, 25

SOIL EXPOSURE PATHWAY

18. Determine the number of people that occupy residences or attend school or day care on or within 200 feet of the site property.

There are no schools or day care centers on or within 200 feet of the site. However, approximately 57 people occupy residences within 200 feet of the site.

Ref. Nos. 14, 26

19. Determine the number of people that work on or within 200 feet of the site property.

The number of people that currently work on site is three people.

Ref. No. 26

20. Identify terrestrial sensitive environments on or within 200 feet of the site property.

There are no terrestrial sensitive environments on or within 200 feet of the site.

Ref. Nos. 14, 24, 25, 26

AIR ROUTE

21. Describe the likelihood of release of contaminants to air as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release define the supporting analytical evidence

There is no potential for a release of contaminants to the air. No evidence of an air release has ever been documented.

Ref. No. 1

22. Determine populations that reside within 4 miles of the site.

<u>Distance</u>	<u>Population</u>
0 - $\frac{1}{4}$ mi	1,210
$>\frac{1}{4}$ - $\frac{1}{2}$ mi	2,022
$>\frac{1}{2}$ - 1 mi	11,239
>1 - 2 mi	41,866
>2 - 3 mi	65,961
>3 - 4 mi	76,653

Ref. No. 27

23. Identify sensitive environments and wetlands acreage within $\frac{1}{2}$ mile of the site.

<u>0 - $\frac{1}{4}$ mile</u>	<u>$\frac{1}{4}$ - $\frac{1}{2}$ mile</u>
<u>Sensitive Environments/Wetland Acreage</u>	<u>Sensitive Environments/Wetland Acreage</u>
None	Palustrine Forested Wetlands/1 to 3 acres

Ref. Nos. 14, 24, 25

24. If a release to air is observed or suspected, determine the number of people that reside or are suspected to reside within the area of air contamination from the release.

A release of contaminants to the air has not been observed or suspected. There is no evidence from the site inspection to indicate a release of contaminants to the air.

Ref. Nos. 1, 26

25. If a release to air is observed or suspected, identify any sensitive environments, listed in question No. 23, that are or may be located within the area of air contamination from the release.

A release of contaminants to the air has not been observed or suspected. There is no evidence from the site inspection to indicate a release of contaminants to the air.

Ref. Nos. 1, 26

ATTACHMENT 1

EXHIBIT A

PHOTOGRAPH LOG

FLAGS INCORPORATED
BELLMAWR, NEW JERSEY

ON-SITE RECONNAISSANCE: JANUARY 22, 1991

FLAGS INCORPORATED
BELLMAWR, NEW JERSEY
JANUARY 22, 1991

PHOTOGRAPH INDEX

ALL PHOTOGRAPHS TAKEN BY JOE FILOSA

<u>Photo Number</u>	<u>Description</u>	<u>Time</u>
1P-1	View of front of the building facing northwest.	0945
1P-2	View of the building facing southwest.	0955
1P-3	View of former drainage area and acid storage area facing northwest.	0959
1P-4	View of nearby houses facing northeast.	1000
1P-5	View of former sludge disposal area facing northeast.	1001
1P-6	View of nearby houses facing southeast.	1004

FLAGS INCORPORATED, BELLMAWR, NEW JERSEY



1P-1

January 22, 1991

0945

View of front of the building facing northwest.



1P-2

January 22, 1991

0955

View of the building facing southwest.

FLAGS INCORPORATED, BELLMAWR, NEW JERSEY



1P-3

January 22, 1991

0959

View of former drainage area and acid storage area
facing northwest.



1P-4

January 22, 1991

1000

View of nearby houses facing northeast.

FLAGS INCORPORATED, BELLMAWR, NEW JERSEY



1P-5

January 22, 1991

1001

View of former sludge disposal area facing northeast.



1P-6

January 22, 1991

1004

View of nearby houses facing southeast.

EXHIBIT A

PHOTOGRAPH LOG

FLAGS INCORPORATED
BELLMAWR, NEW JERSEY

SITE INSPECTION: FEBRUARY 27, 1991

FLAGS INCORPORATED
BELLMAWR, NEW JERSEY
FEBRUARY 27, 1991

PHOTOGRAPH INDEX

ALL PHOTOGRAPHS WERE TAKEN BY JOE FILOSA

<u>Photo Number</u>	<u>Description</u>	<u>Time</u>
1P-1	View of A. Bonasera collecting surface soil sample S1 facing northwest.	1019
1P-2	View of A. Bonasera collecting surface soil sample S2 from the former diked drainage area facing northeast.	1028
1P-3	View of K. Billy collecting surface soil sample S8 facing east.	1040
1P-4	View of K. Billy collecting surface soil sample S9 facing east.	1051
1P-5	View of K. Billy collecting surface soil sample S10 facing east.	1100
1P-6	View of A. Bonasera collecting subsurface soil samples S3, S4 from the former degreaser oil sludge disposal area facing west.	1125
1P-7	View of K. Billy collecting subsurface soil sample S5 facing west.	1145
1P-8	View of K. Billy collecting surface soil sample S6 facing west.	1159
1P-9	View of A. Bonasera collecting subsurface soil sample S7 facing west.	1215

FLAGS INCORPORATED, BELLMAWR, NEW JERSEY



1P-1

February 27, 1991
View of A. Bonasera collecting surface soil sample S1
facing northwest.

1019



1P-2

February 27, 1991
View of A. Bonasera collecting surface soil sample
S2 from the former diked drainage area facing northeast.

1028

FLAGS INCORPORATED, BELLMAWR, NEW JERSEY



1P-3 February 27, 1991
View of K. Billy collecting surface soil sample S8
facing east.

1040



1P-4 February 27, 1991
View of K. Billy collecting surface soil sample S9
facing east.

1051

FLAGS INCORPORATED, BELLMAWR, NEW JERSEY



1P-5 February 27, 1991
View of K. Billy collecting surface soil sample S10 facing east.

1100



1P-6 February 27, 1991
View of A. Bonasera collecting subsurface soil samples S3, S4 from the former degreaser oil sludge disposal area facing west.

1125

FLAGS INCORPORATED, BELLMAWR, NEW JERSEY



1P-7 February 27, 1991 1145
View of K. Billy collecting subsurface soil sample S5 facing west.



1P-8 February 27, 1991 1159
View of K. Billy collecting surface soil sample S6 facing west.

FLAGS INCORPORATED, BELLMAR, NEW JERSEY



1P-9 February 27, 1991 1215
View of A. Bonasera collecting subsurface soil sample
S7 facing west.

ATTACHMENT 2

REFERENCES

1. Potential Hazardous Waste Site Preliminary Assessment, Form 2070-12, Flags Incorporated, United States Environmental Protection Agency, February 11, 1986.
2. Letter from Lance Miller, Assistant Chief, Enforcement Element, Region 4, Division of Water Resources, New Jersey Department of Environmental Protection (NJDEP). May 19, 1983.
3. NJDEP, Bureau of Industrial Site Evaluation, Hazardous Site Mitigation Administration, Division of Water Management, Environmental Cleanup Responsibility Act (ECRA), Initial Notice, General Information Submission, November 21, 1984.
4. Letter from Alvin Ginsberg, President, Flags Inc., to Anthony McMahon, Chief, Bureau of Industrial Site Evaluation, Division of Waste Management, NJDEP. December 17, 1984.
5. Letter from Alvin Ginsberg, President, Flags Inc., to Anthony McMahon, Chief, Bureau of Industrial Site Evaluation, Division of Waste Management, NJDEP. December 20, 1984.
6. Letter from Anthony McMahon, Chief Bureau of Industrial Site Evaluation, Division of Waste Management, NDJEP, to Alvin Ginsberg, President, Flags Inc. January 30, 1985.
7. Memorandum, from Phil Sandine, Technical Coordinator, Hazardous Site Mitigation Administration, Division of Waste Management, NJDEP, to Mike Nalbone, Case Manager, Bureau of Industrial Site Evaluation, Division of Waste Management, also of the NJDEP, Subject: Review of sampling plan for AMKO (Flags) in Bellmawr, ECRA 84-394. February 1, 1985.
8. Sample Analysis, S.R. Analytical Inc., April 19, 1985.
9. Sample Analysis, S.R. Analytical Inc., May 1, 1985.
10. Letter from Kathryn Stachejko, Secretary, Bellmawr Environmental Commission, to Mr. J. Goliszewski, Bureau of Industrial Site Evaluations, Division of Waste Management, NJDEP, February 4, 1986.
11. Farlekas, George M., Nemickas, Bronius, and Gill, Harold E., Geology and Groundwater Resources of Camden County, New Jersey, U.S. Department of the Interior, Geological Survey, Water Resources Investigations 76-76, June, 1976.
12. U.S.G.S. well inventory, wells >75 gpm, Camden County, United States Geological Survey, Trenton, New Jersey, February 20, 1986.
13. U.S.G.S. well inventory, wells >75 gpm, Gloucester County, United States Geological Survey, Trenton, New Jersey, February 20, 1986.
14. Four-mile Vicinity Map: based on U.S. Department of the Interior, Geological Survey, Topographic Maps, 7.5 minute series. "Runnemede, NJ" Quadrangle, 1967, photorevised 1981; "Camden, NJ" Quadrangle, 1967, phtotorevised 1984; "Woodbury, NJ" Quadrangle, 1967, "Philadelphia, PA-NJ" Quadrangle 1967, photorevised 1973.
15. Telecon Note: Conversation between Daniel Van Abs, Bureau of Water Supply Planning and Policy, Division of Water Resources, NJDEP, and Joe Filosa, NUS Corp., November 9, 1990.
16. Telecon Note: Conversation between Robert Park, Gloucester County Health Department, and Paul McNally, NUS Corp., March 13, 1985.

REFERENCES (CONT'D)

17. Telecon Note: Conversation between John Rattie, Delaware River Basin Commission, and Tamara Marquart, NUS Corp., February 14, 1989.
18. Public Water Supply Diversion Report for Bellmawr NJ, October 1989 through March 1991, Brooklawn NJ, January 1990 through March 1991, City of Camden NJ, July 1990 through June 1991, Gloucester City NJ, January 1990 through March 1991, Haddonfield NJ, January 1990 through March 1991, Collingswood NJ, January 1990 through March 1991, Haddon Township NJ, January 1990 through March 1991, New Jersey American Water Co., Haddon Heights Division, January 1990 through March 1991, Westville NJ, January 1990 through March 1991, New Jersey American Water Co., Western Division Haddon System, January 1990 through March 1991, and New Jersey American Water Co., Haddon District-Laurel Springs, January 1990 through March 1991, Bureau of Water Allocation, Division of Water Resources, NJDEP.
19. Office of Demographic and Economic Analysis, Division of Planning and Research, New Jersey Department of Labor, Population Estimates for New Jersey, July 1, 1982, Official State Estimates, Trenton, New Jersey, September 1983.
20. Soil Survey of Camden County, New Jersey, U.S. Department of Agriculture, Soil Conservation Service, April, 1966.
21. Bauersfeld, W.R., Moshinsky, E.W., Pustay, E.A., and Jones, W.D., Water Resources Data, New Jersey Water Year 1987, Volume 2, Delaware River Basin and Tributaries to Delaware Bay, U.S. Geological Survey Water-Data Report NJ-87-2, United States Geological Survey, 1988.
22. National Flood Insurance Program, Flood Insurance Rate Map (FIRM), Borough of Bellmawr, New Jersey, Community Panel Number 340124 0001B, U.S. Department of Housing and Urban Development, Federal Insurance Administration, February 15, 1980.
23. Delaware River Water Quality Assessment, 1986-87 305 (b) Report, Delaware River Basin Commission, West Trenton, New Jersey, March, 1988.
24. Atlas of National Wetlands Inventory Maps for New Jersey, U.S. Department of the Interior, Fish and Wildlife Service, Region Five, Newton Corner, Massachusetts, 1984.
25. National Wetlands Inventory, Wetlands of New Jersey, U.S. Department of the Interior, Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts, July, 1985.
26. Field Notebook, Number 0706, Flags Incorporated, 02-9011-22, On-Site Reconnaissance, NUS Corp., Region 2 FIT, Edison, New Jersey, January 22, 1991.
27. General Sciences Corporation, Graphical Exposure Modeling System, (GEMS). Landover Maryland, 1986.
28. New Jersey Natural Heritage Program, Potential Threatened and Endangered Vertebrate Species in Camden County, NJDEP, Division of Parks and Forestry, May 22, 1987.
29. U.S. EPA Superfund Program, Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), List 8: Site/Event Listing, p. 69, October 4, 1990.
30. Election Division, New Jersey Department of State, CN 304, Trenton, NJ, Congressional Districts, January, 1987.
31. Freeze, R.A., and Cherry, J.A., Groundwater, Prentice Hall Inc., New Jersey, 1979.

REFERENCES (CONT'D)

32. U.S. EPA Contract Laboratory Program, Ceimic Corporation and Natural Resources Laboratories Inc., Case No. 15941, Laboratory Analyses from NUS Corp. Region 2 FIT Site Inspection, conducted on February 27, 1991.

REFERENCE NO. 1



Preliminary Assessment

FLAGS, INC. A/K/A AMKO MANUFACTURING CO.
41 Oak Avenue
Bellmawr, Camden County
New Jersey 08031

FLAGS, INC. A/K/A AMKO MANUFACTURING CO.
41 Oak Avenue
Bellmawr, Camden County
New Jersey 08031

Flags, Inc. A/K/A Amko Manufacturing Company, located in Bellmawr, Camden County, New Jersey, was owned and operated by Alvin Ginsberg for 13 years. During that time, the company manufactured metal surgical instruments. The process of making instruments involved the use of a solvent (Trichloroethylene) to clean and dry parts. Nitric, Sulfuric, Muriatic and Mineral Acids were also utilized in the manufacturing process.

The company was initially investigated on May 19, 1983 by the Division of Water Resources (DWR). An inspection was conducted in response to a report of improper waste disposal procedures. During the inspection, the company acknowledged that degrease residues had been dumped on the ground outside the building for forty years. Under the direction of the NJDEP, this practice ended. Degrease residues were then disposed of in accordance with the guidelines established by the NJDEP.

On December 12, 1984, a preliminary inspection of the facility was performed by the Bureau of Industrial Site Evaluation (BISE). An area was discovered outside the building where non-contact cooling water was being discharged without a NJPDES Permit. Although contaminants were not detected in soil samples taken from this area, the company discontinued this practice in April, 1985. Analysis conducted on soil samples collected from the sludge dump area revealed the presence of Tetrachloroethylene. On May 20, 1985, approximately 1-1/2 cubic yards of soil from this area was excavated and the area subsequently refilled with clean sand.

A final inspection of the facility was performed by the BISE on January 16, 1986. Hazardous wastes on-site consisted of three pounds of oil/solvent mixed with a drying compound. Based on the information available on Flags, Inc. A/K/A Amko Manufacturing Company, a low priority rating has been given to this site.

Submitted by:

Carol Graubart
Environmental Specialist
NJDEP/HSMA

Number of hours to complete: 25



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION
01 STATE 02 SITE NUMBER

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Flags, Inc. A/K/A Amko Mfg. Co.		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 41 Oak Avenue			
03 CITY Bellmawr	04 STATE NJ	05 ZIP CODE 08031	06 COUNTY Camden	07 COUNTY CODE	08 CONG DIST
09 COORDINATES LATITUDE 39° 52' 12"__		LONGITUDE 75° 05' 01"__		Block: 838 Lots: 7,8,9	

10 DIRECTIONS TO SITE (Starting from nearest public road)

Take Route 29 south to Route 206. Take Route 206 south. Take 295 south to exit 28. Make a left on Route 168 (south) through Bellmawr. Make right on Oak Avenue, turn right on Lowell Avenue. Facility is visible from Lowell Avenue

III. RESPONSIBLE PARTIES

01 OWNER (if known) Alvin Ginsberg, President		02 STREET (Business, mailing, residential) 41 Oak Avenue			
03 CITY Bellmawr	04 STATE NJ	05 ZIP CODE 08031	06 TELEPHONE NUMBER 609 931-6384		
07 OPERATOR (If known and different from owner)		08 STREET (Business, mailing, residential)			
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER ()		
13 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL: _____ (Agency name) <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER: _____ (Specify) <input type="checkbox"/> G. UNKNOWN					

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check one)

☐ A. RCRA 3001 DATE RECEIVED _____ MONTH DAY YEAR ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103(c)) DATE RECEIVED _____ MONTH DAY YEAR ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION <input checked="" type="checkbox"/> YES DATE 1/16/86 <input type="checkbox"/> NO MONTH DAY YEAR		BY (Check all that apply) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input type="checkbox"/> F. OTHER: _____ (Specify)	
02 SITE STATUS (Check one) <input type="checkbox"/> A. ACTIVE <input checked="" type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN		03 YEARS OF OPERATION prior to 1972 1984 <input type="checkbox"/> UNKNOWN	

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

As of final inspection conducted by BISE on January 16, 1986, on-site wastes consisted of oil/solvent mixed with drying compound. (See Reference A).

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

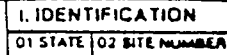
The information available on Flags, Inc. indicates all contaminated soils were removed from the sludge dump area. However, the potential exists that contamination to groundwater and surrounding soils occurred as a result of the waste disposal methods employed by the company. (see attachment B)

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents) <input type="checkbox"/> A. HIGH (Inspection required promptly) <input type="checkbox"/> B. MEDIUM (Inspection required) <input checked="" type="checkbox"/> C. LOW (Inspect on next available date) <input type="checkbox"/> D. NONE (No further action needed. Estimate current condition fairly)			
---	--	--	--

VI. INFORMATION AVAILABLE FROM

01 CONTACT Mike Nalbome		02 OF (Agency/Organization) DEP/ECRA		03 TELEPHONE NUMBER 609 633-7141	
04 PERSON RESPONSIBLE FOR ASSESSMENT Carol Graubart		05 AGENCY DEP	06 ORGANIZATION HSMA	07 TELEPHONE NUMBER 609 633-2215	08 DATE 2/11/86



LPA FORM 2070-12 (7-01)



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A GROUNDWATER CONTAMINATION 02 ☐ OBSERVED (DATE _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Groundwater may have been contaminated as a result of degreaser waste disposal practices employed by the company for 40 years. (See Attachment B).

01 ☐ B SURFACE WATER CONTAMINATION 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ C CONTAMINATION OF AIR 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ D FIRE/EXPLOSIVE CONDITIONS 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ E CONTAMINATION OF WATER 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☒ F CONTAMINATION OF SOIL 02 ☒ OBSERVED (DATE 5/19/83) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (AC100) 04 NARRATIVE DESCRIPTION

The potential for contamination of soil exists due to the fact that degreaser wastes were disposed of on site, for 40 years (See Attachment B).

01 ☐ G DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ H WORKER EXPOSURE/INJURY 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ I POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

☐ K. DAMAGE TO FAUNA
NARRATIVE DESCRIPTION (Include number of species)

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

☐ L. CONTAMINATION OF FOOD CHAIN
NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES
(Spills, runoff, overflowing, seepage, etc.)

02 ☒ OBSERVED (DATE: 5/19/83) ☐ POTENTIAL ☐ ALLEGED

POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

During an inspection of the facility, conducted by the DWR on May 19, 1983, the company acknowledged dumping degreaser residues outside the building for 40 years.

☐ N. DAMAGE TO OFFSITE PROPERTY
NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☒ P. ILLEGAL/UNAUTHORIZED DUMPING
NARRATIVE DESCRIPTION

02 ☒ OBSERVED (DATE: 5/19/83) ☐ POTENTIAL ☐ ALLEGED

An inspection of the facility was performed by the DWR on May 19, 1983. An area was discovered outside the building where degreaser residues containing Trichloroethylene, had been dumped for over forty years.

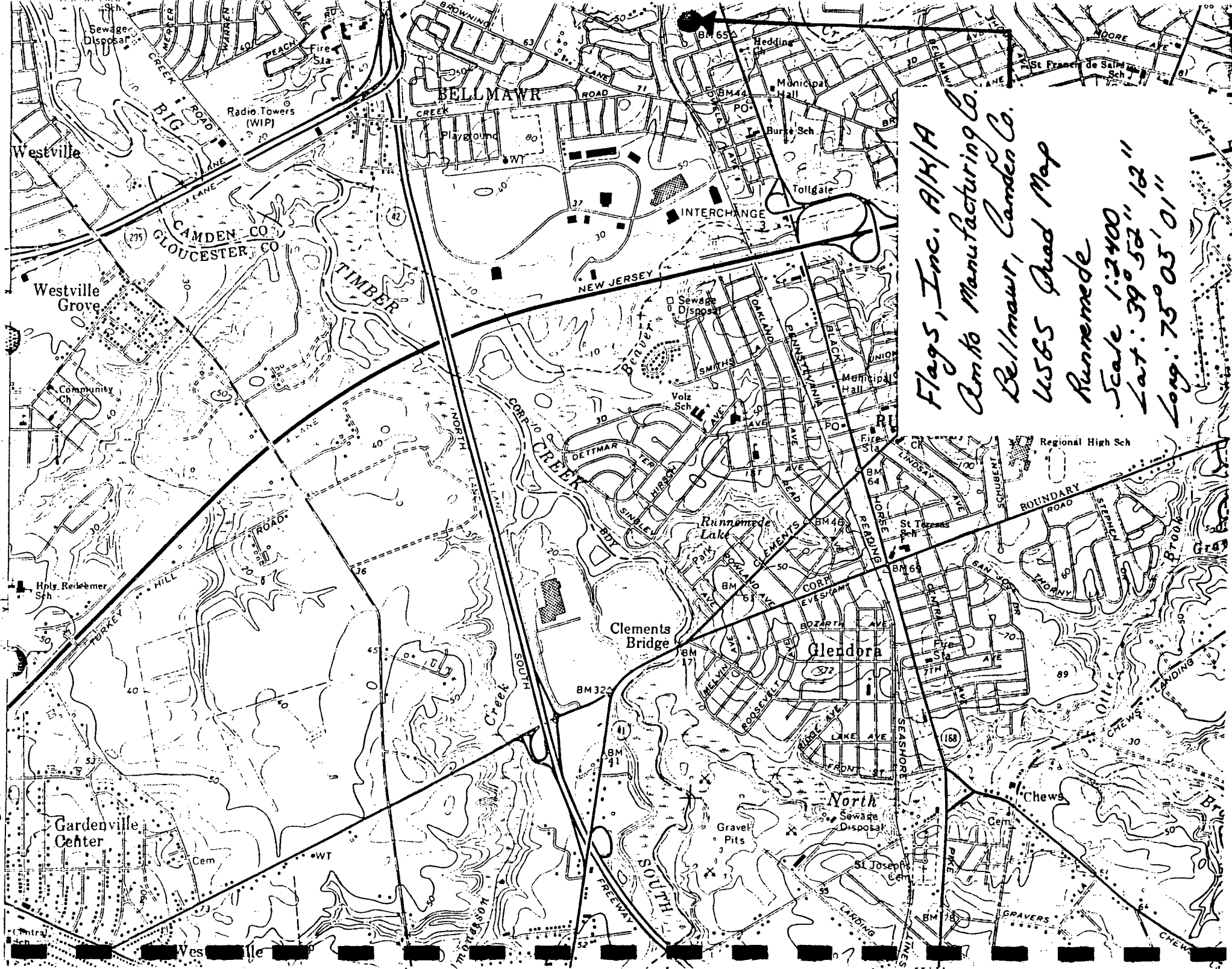
DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

COMMENTS

V. SOURCES OF INFORMATION (List all sources of information used in the assessment.)

NJDEP/BISE - Trenton 609/633-7141



Flags, Inc. A/K/A
Amto Manufacturing Co.
Bellmawr, Camden Co.
USGS Quad Map
Runnemede
Scale 1:2400
Lat: 39° 52' 12"
Long: 75° 05' 01"

Bureau of Industrial Site Evaluation
Environmental Cleanup Responsibility Act

Report of Inspection

ECRA Case #84394

Date of Inspection 1/16/86

Inspection Category: Final

Inspector: Michael Nalbhone

Industrial Establishment: Flags, Inc.

Location: 41 Oak Ave.
Bellmawr, Camden County

Individuals Involved: Mr. Ginsberg, President

NARRATIVE DESCRIPTION

An inspection was conducted inside and outside the building. No violations were observed. During the inspection, I was given a shipping receipt confirming that all hazardous substances were removed off-site. The hazardous waste on-site amounted to approximately three (3) pounds of oil/solvent mixed with speedy dry. The company disposed of this as a small quantity generator.

DEFICIENCIES NOTED

None

ACTIONS REQUIRED ON THE PART OF THE APPLICANT

None

ACTIONS REQUIRED ON THE PART OF BISE

1. Return Letter of Credit.

Inspector/Case Manager Signature

Mike Nalbhone

Approved: _____, Supervisor
Bureau of Industrial Site Evaluation

Attachment A



Environmental Concern Tracking Sheet

INDUSTRIAL ESTABLISHMENT

Name FLAGS INC (AMKO MANUFACTURING CORP.)
City Bellmawr Case Number 84-394

VIOLATIONS

RCRA ☐ NJPDES ☒ APC ☐ other ☐

SOURCE

Drum Storage <input type="checkbox"/>	Waste Pile <input type="checkbox"/>	Seepage Pit <input type="checkbox"/>	Tank Farm <input type="checkbox"/>
Discharge <input checked="" type="checkbox"/>	Monitor Well <input type="checkbox"/>	Dumpster <input type="checkbox"/>	Transformer <input type="checkbox"/>
Potable Well <input type="checkbox"/>	Floor Drain <input type="checkbox"/>	Bld. Decontam. <input type="checkbox"/>	other <input type="checkbox"/>
Roof Drain <input type="checkbox"/>	Septic System <input type="checkbox"/>	Asbestos <input type="checkbox"/>	other <input type="checkbox"/>
UGST <input checked="" type="checkbox"/>	Lagoon <input type="checkbox"/>	Spill <input type="checkbox"/>	other <input checked="" type="checkbox"/>

1 - OK

POTENTIAL AREAS OF CONTAMINATION

Location of Concern	Pollutants	Concentration	Outcome
side of building, non contact cooling water discharged on to soil	unknown possible PH problem	Action Level	Discharge was stopped in April 1985. Samples taken confirmed no action necessary
SLUDGE DUMP AREA, 3' x 3' x 4' deep contaminated soil.	Trichloro- ethylene or Tetrachloro- ethylene	Concentration 2.6 ppm	Removal of the soil on May 20, 1985. Attachment B
		Action Level	



PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES
Division of Hazardous Waste Management
P. O. Box 2063
Harrisburg, PA 17120

ER-SWM-51:Rev.5/84

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. SMALL QUANTITY GEN	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address AMKO SURGICAL INSTR. 41 OAK AVE		A. State Manifest Document Number PAB 01751794		B. State Gen. ID	
Generator's Phone (609) 931-6384		C. State Trans. ID PA-AH		D. Transporter's Phone (215) 383-6600	
5. Transporter 1 Company Name Lehigh Valley Co. Inc.		6. US EPA ID Number PA 22147 ZE		E. State Trans. ID PA-AH	
7. Transporter 2 Company Name		8. US EPA ID Number		F. State Facility's ID Not Required	
9. Designated Facility Name and Site Address DELAWARE CONTAINER CO., INC W. 11TH AVE + VALLEY RD COATESVILLE, PA 19320		10. US EPA ID Number PA 064375470		G. State Facility's Phone 415 383-0000	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
a. NON-HAZARDOUS MATERIAL.		5.	DM	3900	P NA
b.					
c.					
d.					
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code)		K. Handling Codes for Wastes Listed Above			
a. SOLID / NA		b. c. d.			
b.		c. d.			
15. Special Handling Instructions and Additional Information THIS MATERIAL IS SOIL CONTAMINATED WITH 1,1,2,2-TETRACHLOROETHYLENE. IT HAS BEEN DECLARED ID 27 BY THE DEP. THIS MANIFEST IS BEING USED FOR TRACKING PURPOSES ONLY.					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations, and all applicable State laws/regulations.					
Printed/Typed Name		Signature		Date Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Date Month Day Year	
Printed/Typed Name		Signature		Date Month Day Year	
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature		Date Month Day Year	
Printed/Typed Name		Signature		Date Month Day Year	
19. Discrepancy Indication Space Section 12 should read - 5 DM (5 drums) Section 13 should read - 7,000 (7,000 pounds) 3,900 (3,900 pounds) Per Delaware Container.					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name		Signature		Date Month Day Year	

Bureau of Industrial Site Evaluation
Environmental Cleanup Responsibility Act

Report of Inspection

ECRA Case #84-394

Inspection Category: preliminary x

Inspector: Mike Nalbhone

Date of Inspection 12/20/84

final

Industrial Establishment: Flags, Inc. aka AMKO Mfg. Co.

Location: 41 Oak Avenue
Bellmawr, Camden County

Individuals Involved: Alvin Ginsberg, President

NARRATIVE DESCRIPTION

I arrived on-site at approximately 11:00 am and met Mr. Ginsberg, President of Flags, Inc. Mr. Ginsberg and I walked outside the facility to check the surrounding property. I observed five rusted fifty-five gallon steel drums next to the building. I found that these drums were empty. In addition, Mr. Ginsberg informed me that the drums were not used for any purpose and that they were placed there a long time ago.

I checked the ground area where the company in 1983 disposed of degreaser sludge. I observed a 1' x 1' area where the sludge disposal occurred. This area is insignificant and does not warrant further investigation.

I also observed a second area outside the building which was lacking vegetation and consisted of puddles of water. Mr. Ginsberg informed me that this area is the result of discharging non-contact cooling water from a degreaser unit. Questioning whether the company ever obtained a NJPDES permit for this discharge, I was told no. I then inspected the degreaser unit inside the building. I observed that the discharge line from the degreaser went through the interior wall into a storage room. This room was used for raw material storage i.e. trichlorethylene, nitric acid, sulfuric acid, muriatic acid and mineral acid. In addition, this room was also used for soaking metal parts in acid solutions. The discharge line from the storage room went onto the ground under the concrete floor. A closer investigation of the concrete floor revealed a small hole covered by wooden boards. It was determined that since the floor was in poor condition, it would allow any incidental spills to be discharged onto the ground. Because of the poor integrity of the floor, I recommended to Mr. Ginsberg to have soil samples taken from this area. I later called Mr. Ginsberg after the inspection and informed him of the required analytical work to be done.

I inspected the rest of the building and observed employee's working. I noted that small amounts of oil was used during routine operations. Two types of oil were used, a water soluble oil and a cutting oil containing 1,1,1 trichloroethane. Both of these oils are used in such small quantities that no waste is generated (i.e. brush on or squirt on). No other areas warranted further investigation.

At approximately 12:15 pm my inspection was completed and I left the site.

Attachment C

DEFICIENCIES NOTED

Discharge of non-contact cooling water onto surface without NJPDES permit.

ACTIONS REQUIRED ON THE PART OF THE APPLICANT

1. Apply for NJPDES application through DWR (609) 292-0424.
2. Submit sampling plan for area of discharge and test for:
 - a. mineral acids through ion chromatograph
 - b. TOC for organics
 - c. pH

ACTIONS REQUIRED ON THE PART OF BISE

Inspector/Case Manager Signature

Mike Tallone

Approved:

[Signature]

, Assistant Chief

Bureau of Industrial Site Evaluation

NEGATIVE DECLARATION

Industrial Establishment: Amko Mfg. Co.

Location: 41 Oak Ave., Bellmawr, NJ 08031, Camden County

Tax Block: 83 Tax Lot: part of lots 7, 8, 9

Transaction: Sale of business assets, cessation of operations

Sellers: FLAGS Inc. t/a Amko Mfg. Co., Alvin Ginsberg, Frances B. Ginsberg

Buyer: Premier Dental Products Co., Norristown, PA

Signer: Alvin Ginsberg, President, FLAGS Inc. t/a Amko Mfg. Co. since 1972.

Cleanup: Sludge Dump Area; Approximately 1½ cubic yards (3 x 3 x 4½ ft.) of soil was excavated, placed into 5 steel drums, sealed and transported to Delaware Container Co., Inc.,

W. 11th Ave. & Valley Road, Coatesville, PA 19320. The hole was backfilled with clean sand.

The excavation, transport and backfilling were done by Leming Excavating Co., 91 Orchard Ave., Runnemede, NJ 08078. All the work was done on May 20, 1985.

Diked Drainage Area; The once through, non-contact cooling water is no longer being discharged onto the ground. This was stopped in April, 1985.

Any discharge or spills have been cleaned up according to procedures approved by the NJ DEP.

No hazardous wastes will remain on the site.

All substances noted in the Initial Notice (ECRA 1 & 2) dated Nov. 21, 1984 and supplements thereto will be removed from the site within 5 days of closing except for the heating oil which will remain in the fuel oil storage tank. Other than the fuel oil, no hazardous substances will remain on the site.

Signed: Alvin Ginsberg

Alvin Ginsberg, President
FLAGS Inc. t/a Amko Mfg. Co.

Date: October 10, 1985

Sworn to and subscribed before me
this 10th day of October, 1985

Patricia C. Graziosi
Notary Public

PATRICIA C. GRAZIOSI
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires July 14, 1988

Attachment D

amko manufacturing
company
SURGICAL INSTRUMENTS

41 Oak Avenue, Bellmawr, NJ 08031 • (609) 931-6384
Telex No. 0883 • 1-800-257-7487

RECEIVED
MAY 23 11 03 AM '85
DIVISION OF
WASTE MANAGEMENT
HSM-BISE

NEGATIVE DECLARATION

Industrial Establishment: Amko Mfg. Co.

Location: 41 Oak Ave., Bellmawr, NJ 08031, Camden County

Tax Block: 83

Tax Lot: part of lots 7, 8, 9

Transaction: Sale of real property, sale of business

Sellers: Frances B. Ginsberg, Alvin Ginsberg, Amko Mfg. Co.

Buyer: William Tippy, Ortho-pli Corp.

Cleanup: Sludge Dump Area; Approximately $1\frac{1}{2}$ cubic yards ($3 \times 3 \times 4\frac{1}{2}$ ft) of soil was excavated, placed into 5 steel drums, sealed and transported to Delaware Container Co., Inc., W. 11th Ave. & Valley Rd., Coatesville, PA 19320. The hole was backfilled with clean sand. The excavation, transport and backfilling was done by Leming Excavating Co., 91 Orchard Ave., Runnemede, NJ 08078. All of this work was done on May 20, 1985.

Diked Drainage Area; The once through, non-contact cooling water is no longer being discharged onto the ground. This was stopped in April, 1985.

No hazardous wastes will remain on the site.

The hazardous substances to remain on-site are those as noted in the Initial Notice (ECRA 1 & 2) dated November 21, 1984 and supplements thereto.

Seal

Alvin Ginsberg
Alvin Ginsberg, President & Chairman of the Board

Amko Mfg. Co.

Dated

May 21, 1985

Sworn to and subscribed
before me, a notary public,
this 21st day of May, 1985.

Patricia C. Graziosi

PATRICIA C. GRAZIOSI
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires July 14, 1988

Miscellaneous

SCHEDULE A

AGREEMENT OF SALE

OF
BUSINESS

AGREEMENT OF SALE, effective the 19th day of November, 1984, among FLAGS, INC., a New Jersey Corporation d/b/a AMKO MANUFACTURING CO. ("Seller") located at 41 Oak Avenue, Bellmawr, New Jersey 08031 and ORTHOPLI Corp. "(Buyer")

W I T N E S S E T H:

Whereas, contemporaneous with the execution of this Agreement, FRANCES GINSBERG and Buyer have entered into an agreement of sale of real estate for the purchase of certain real estate (the "real estate").

NOW, THEREFORE, It is Agreed:

1. SALE OF ASSETS. Seller agrees to sell and Buyer agrees to purchase the following described property on the date of closing:

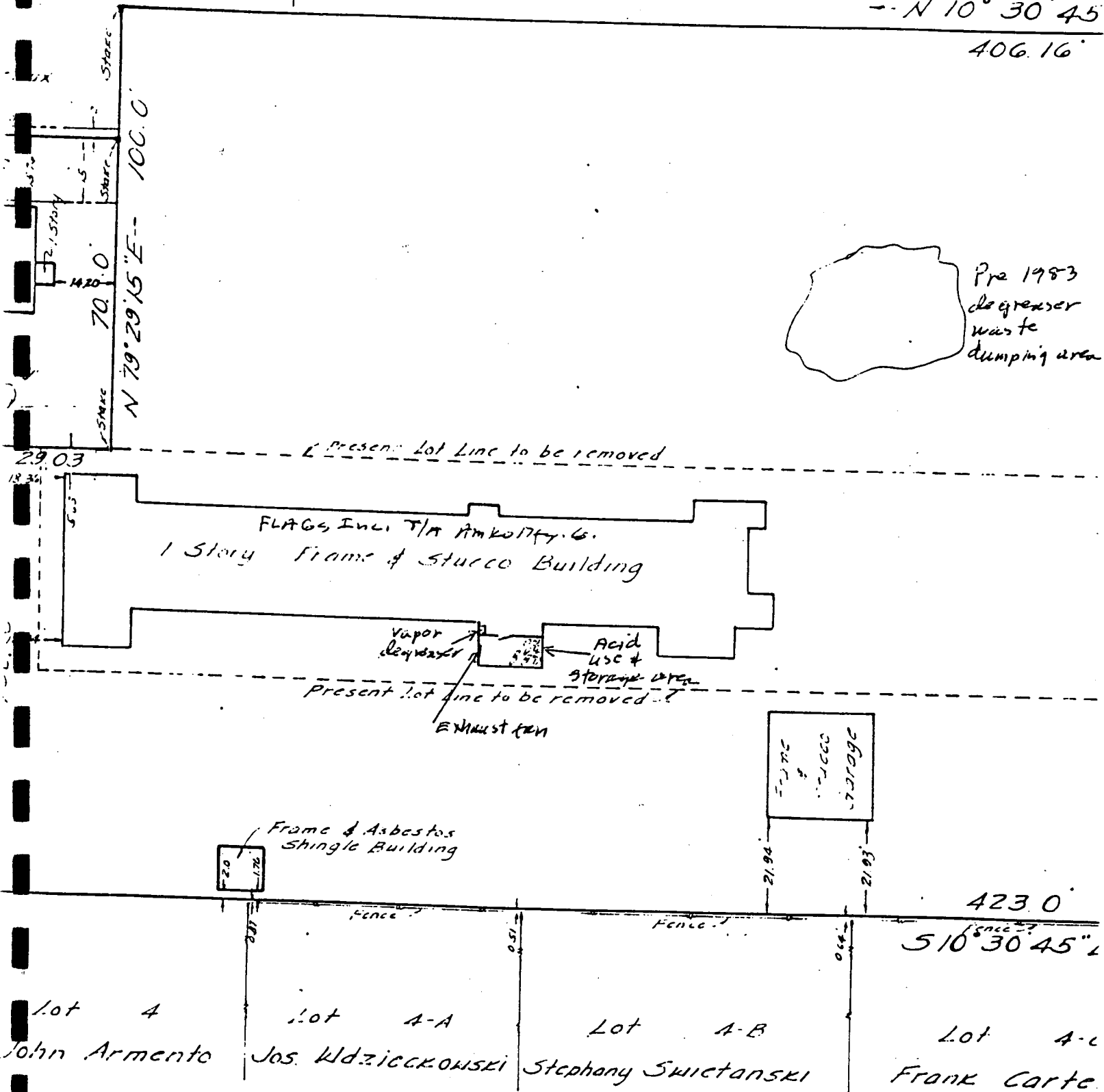
1.1. All of the machinery and equipment of Seller listed on the attached Schedule A.

1.2. All inventory of the Seller's business held by the Seller on the date of closing.

1.3. Seller's Goodwill and Trade name, customer lists, books and records.

-- N 10° 30' 45"

406.16'



Metal surgical instruments are manufactured by this Industrial Establishment. A vapor degreaser is used for cleaning and drying metal parts. Trichlorethylene, Nitric, Sulfuric and Muriatic Acids are used for pickling and cleaning metal parts. The acids are stored in the stainless steel or plastic drums or carboys provided by the manufacturers of such acids and in which they are delivered to the Industrial Establishment. The acids are removed from the storage containers as needed and mixed with water to form dilute solutions. These mixtures are either used up in the clean-up process or simply allowed to evaporate pursuant to instructions provided by the New Jersey Department of Environmental Protection. Prior to 1983, the solid waste residue from the degreaser, which consists of fibers from the polishing wheels, polish and oils, had been dumped onto the ground. On May 19, 1983, the Industrial Establishment received notice from the New Jersey Department of Environmental Protection directing the Industrial Establishment in the future to dispose of the solid waste with its other trash. The Industrial Establishment immediately responded and complied with the department's request. Attached hereto are the letters involved in the correspondence between the Department of Environmental Protection and the Industrial Establishment. The degreasing fluid is now removed from the degreaser and placed in a safe, well ventilated room and allowed to dry by evaporation and the dry residue is disposed of along with the Industrial Establishment's other trash, all in accordance with the Department of Environmental Protection's instructions.

APPENDIX #3

Because of the insignificant and de minimis amount of prior disposal on site there is no need for any type of soil sample or other measurement. Furthermore, pursuant to the sequence of events described in Appendix #2, the site of the disposal has already been reviewed by representatives of the Department of Environmental Protection in May of 1983. At that time no determination was made that any type of clean-up activity or soil samples was necessary due to the minimal amount of disposal. Since 1983, disposal of materials has been done following the guidelines suggested by the Department of Environmental Protection at that time.

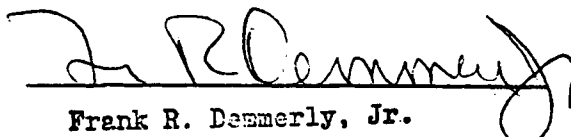
6. While there has been a small discharge of hazardous substances on the Real Estate, such discharge has been cleaned up in accordance with Department procedures. A detailed explanation of the discharge and the procedure implemented to clean up such discharge has been provided to the Department pursuant to the General Information Submission (GIS) and the Site Evaluation Submission (SES) previously supplied to the Department.

7. No hazardous substances or wastes currently remain on the Real Estate above the level approved by the Department.

8. On the basis of the above facts, in my opinion, the Corporation is entitled to and should be granted a "Negative Declaration" pursuant to the provisions of ECRA and its supporting regulations.


ALVIN GINSBERG

Sworn to and subscribed:
before me this 19 day:
of December, 1984:


Frank R. Dammerly, Jr.
Attorney at Law
State of New Jersey

REFERENCE NO. 2



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
P.O. BOX CN 029
TRENTON, NEW JERSEY 08625

JOHN W. GASTON JR., P.E.
DIRECTOR

Mr. Alvin Ginsberg, President
The Amko Manufacturing Company
41 Oak Avenue
Bellmawr, New Jersey

MAY 19 1983

RE: Disposal of Degreasing Residuals
Bellmawr, Camden County

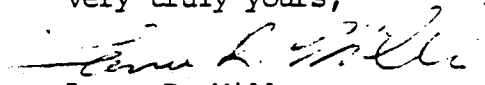
Dear Mr. Ginsberg:

In response to a report of improper waste disposal practices, an inspection was conducted by Division representatives at the Amko Manufacturing Company on May 13, 1983. At this time, you acknowledged that between 1 quart and 1 gallon of residues from your degreasing operation have been dumped on the ground outside your facility each year for the last forty years. This method of waste disposal constitutes a violation of the regulations concerning the New Jersey Pollutant Discharge Elimination System (NJPDDES), N.J.A.C. 7:14A-1 et seq., and the New Jersey Water Pollution Control Act Regulations, N.J.S.A. 58:10A-1 et seq., which render violators subject to penalties of up to \$5,000 per violation and \$500 per day of violation.

You are hereby directed to cease all discharges of industrial wastes to the waters of the State. Please send this writer a written statement of your intent to comply with this directive within fourteen (14) days of your receipt. Your statement will be kept in our records for future reference. Failure to comply with the terms of this directive shall render you liable to the penalties described above.

If you have any questions regarding this matter, please contact Mr. Joseph Douglass of my staff at (609) 292-1871.

Very truly yours,


Lance R. Miller
Assistant Chief
Region VI
Enforcement Element

E23:G5

cc: Camden County Health Dept., Howard Emerson
NJDEP, Office of Science and Research, Rosemarie Tuccillo
Bellmawr Sewerage Authority
Lance R. Miller
File

REFERENCE NO. 3



STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
HAZARDOUS SITE MITIGATION ADMINISTRATION
BUREAU OF INDUSTRIAL SITE EVALUATION



ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT
INITIAL NOTICE
GENERAL INFORMATION SUBMISSION

(This is the first part of a two-part application form. This information must be submitted within 5 days following public release of a decision to close operations or the signing of a sales agreement or option to purchase involving an Industrial Establishment as defined in N.J.S.A. 13:1K-6, the Environmental Cleanup Responsibility Act.)

Please refer to N.J.A.C. 7:1-3.7 et seq. before filling out this form.
Answer all questions. Please print or type.

Date November 21, 1984

1. A. Industrial Establishment

Name Flags, Inc. d/b/a Arko Mfg. Co. Telephone No. 609-931-6384

Street Address 41 Oak Avenue

City or Town Bellmawr State NJ Zip Code 08031

Municipality Bellmawr County Camden

B. Lot number 9 Block number 83

C. Standard Industrial Classification (SIC) Number 3841

D. Current Owner

Name Flags, Inc. d/b/a Arko Mfg. Co. Telephone No. 609-931-6384

Street Address 41 Oak Avenue

Municipality Bellmawr State NJ Zip Code 08031

E. If the industrial establishment discharges to a publicly-owned treatment plant, provide the name and address of that facility.

Name Not Applicable Telephone No. _____

Street Address _____

Municipality _____ State _____ Zip Code _____

FOR DEP use only
Date Received _____
Notice Number _____

INITIAL NOTICE-GENERAL INFORMATION SUBMISSION (page 2 of 6)

F. Has an ECRA application been filed for this Industrial Establishment or location previously? NO If so, when? _____ For what reason? _____

Final Disposition? _____

G. How is this Industrial Establishment heated?(gas,oil,electricity) Oil

2. Previous owner(s) and current address (es)(attach additional sheets if necessary).

<u>Name</u>	<u>Current Address</u>	<u>Description of the Operation</u>
<u>Bernard S. Goldberg</u>	<u>Deceased</u>	<u>Same operation as current</u>
_____	_____	<u>Industrial Establishment</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

3. If the transaction initiating an ECRA review is the closure of operations, fill in the date of public release of the decision to close the facility and enclose a copy of the public announcement. Not Applicable

Date of the public release of the decision _____

Is the public release enclosed? _____ Yes _____ No

If you checked "no", state the reason(s) _____

INITIAL NOTICE-GENERAL INFORMATION SUBMISSION (page 3 of 6)

4. If the transaction initiating an ECRA review is an agreement of sale or option to purchase, fill in the date of the execution of that instrument plus provide a copy of the document See Attached Schedule A

Name and address of the other parties to the transfer:

<u>Name</u>	<u>Street Address and Municipality</u>	<u>Phone No.</u>
<u>Orthopli Corp.</u>	<u>10061 Sandmeyer Lane Philadelphia</u>	<u>215-671-1000</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Is a copy of the agreement of sale or option to purchase attached? X Yes No

If you checked "no", state the reason(s)

5. Actual date proposed for closure of operations or transfer of title As soon as possible but in no event later than December 7, 1984

6. Authorized agent designated to work with the Department.

Name Alvin Ginsberg, President

Street Address 41 Oak Avenue

Municipality Bellmawr State NJ Zip Code 08031

Telephone No. 609-931-6384

7. List all federal and state environmental permits applied for and received at this facility (attach additional sheets if necessary).

X Check here if no permits are involved.

INITIAL NOTICE-GENERAL INFORMATION SUBMISSION (page 4 of 6)

A. New Jersey Bureau of Air Pollution Control.

Permit Number	Date of Approval or Denial	Reason for Denial (if applicable)	Expiration Date
NONE			

B. New Jersey Pollutant Discharge Elimination System

Number	Discharge Activity	Date issued or Denied	Expiration Date	Body of Water Discharged into
NONE				

C. United States Environmental Protection Agency(EPA) Identification Number.

NONE

D. All other federal, state, local environmental permits.

Agency Issuing Permit	Permit Number	Date of Approval or Denial	Expiration Date
NONE			

INITIAL NOTICE-GENERAL INFORMATION SUBMISSION (page 5 of 6)

8. If applicable, identify all administrative orders, temporary or permanent injunctions, civil administrative penalties, civil penalties, or criminal actions concerning the environment issued against the facility during the last ten years.

Check here if no enforcement actions are involved

- A. Date of Action See Attached Schedule B

Section of Law or Statute violated _____

Type of Enforcement Action _____

Description of the violation _____

How was the violation resolved?

- B. Date of Action Not Applicable

Section of Law or Statute violated _____

Type of Enforcement Action _____

Description of the violation

How was the violation resolved?

(Add additional pages, if necessary)

INITIAL NOTICE-GENERAL INFORMATION SUBMISSION (page 6 of 6)

Send this completed form to:

N.J. Department of Environmental Protection
Division of Waste Management
Bureau of Industrial Site Evaluation
CN 028
Trenton, New Jersey 08625

Attn: ECRA Initial Notice

REFERENCE NO. 4

amko manufacturing
company
SURGICAL INSTRUMENTS
41 Oak Avenue, Bellmawr, NJ 08031 • (609) 931-6384
Telex No. 22-0883 • 1-800-257-7487

Dec. 17, 1984

Anthony J. McMahon, Chief
Bureau of Industrial Site Evaluation
Dept. of Environmental Protection
Division of Waste Management
CN 028
Trenton, NJ 08625

Re: FLAGS Inc.

Notice #84-394

Dear Mr. McMahon:

In reply to the items uncompleted on your check list:

#11 The underground tank contains up to 1000 gallons of #2 fuel oil used for heating. The tank is steel.

#12 We have a small quantity of lubricating oils on the premises; 2 five gallon steel containers of water soluble cutting oil. The storage containers are those furnished by the supplier when the oil was purchased.

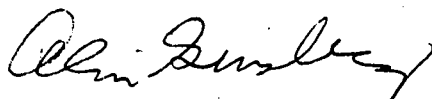
1 pint of tapping oil.

These oils are disposed of by either evaporation or carried away with the metal chips produced while machining. The scrap chips are either sold to a scrap dealer or placed in our trash.

#14 viii Petro-Tite leak test was performed on the fuel oil storage tank. The test results are enclosed.

We trust that this information is sufficient, if not please contact the writer.

Sincerely,



Alvin Ginsberg, President

FLAGS Inc. t/a Amko Mfg. Co.

received
19 DEC 1984

REFERENCE NO. 5

a amko manufacturing
company
SURGICAL INSTRUMENTS
41 Oak Avenue, Bellmawr, NJ 08031 • (609) 931-6384
Telex No. 22-0883 • 1-800-257-7487

Dick

Dec. 20, 1984

Anthony J. McMahon, Chief
Bureau of Industrial Site Evaluation
Dept. of Environmental Protection
Division of Waste Management
CN 028
Trenton, NJ 08625

Dear Mr. McMahon:

Our proposed sampling plan for the surface water discharge area is as follows:
We will have Stablex Reutter Co* test pH and Ion Chromatography in two
places each in the suspect area and one place each outside the suspect area.
These six test places are indicated on the attached drawing. The two 'outside'
tests are for background.

*We may use some other firm capable of performing these tests.

As the discharge is non-contact cooling water, we do not expect a problem
and we would appreciate your expediting approval of the sampling plan.
We would like to thank you for the fast handling of our case to date.

Sincerely,



Alvin Ginsberg, President
FLAGS Inc. t/a Amko Mfg. Co.

received
24 DEC 1984

III. Facility Inspection/Plant Diagram

An inspection of the manufacturing facility was conducted by S-R personnel. The AMKO Company, during the process of making instruments, requires degreasing the metals with a solvent (Trichloroethylene). Once-through (non-contact) cooling water condenses the vapor in the degreaser. This cooling water discharges into a small bucket, overflows into a wooden trough and onto a section of concrete floor inside a storage area for various chemicals used in manufacturing. These chemicals include: Nitric acid, Sulfuric acid, Muriatic acid, and Trichloroethylene. All materials are stored in containers that appear to be in excellent condition. This cooling water discharges to the outside and drains to a small diked area where it collects and then percolates into the ground. A detailed drawing is included. (See Figure I.)

IV. Sampling Plan

In order to determine if any of the chemicals in storage have been washed into the drainage field, S-R proposes to obtain the following soil samples (see Figure I for detail):

- . Two (2) Background Samples (BS #1 and BS #2)
- . Six (6) Interior Area Samples from the Drainage Area (D1, D2, D3, D4, D5, D6)

All samples will be collected utilizing precleaned (deionized, distilled water) plastic scoops; one scoop per soil sample. Each sample will be transferred to the laboratory in a cleaned, unpreserved 950ml glass container and will then be kept cooled at 4°C until analyzed.

The samples from the drainage area will be collected as follows: Samples D1, D2, and D3 will be sampled from a depth of 0"-3". Samples D4, D5, D6 will be collected from each of sample holes D1, D2 and D3 but will be sub surface samples collected from 6"-8". All samples will be returned to the laboratory and one (1) composite sample of the drainage area will be made from small equal portions of each discrete sample D1-D6.

After the samples have been collected and returned to S-R's laboratory, preparation of the composites will be conducted within 12 hours and pH analysis will be performed within 24 hours. All other analyses will be conducted within the normal holding time requirements.



S-R ANALYTICAL INC.

28 Springdale Rd, Cherry Hill, N.J. 08003
(609) 751-1122 (215) 923-2068

PAGE 1 OF 1

PROJECT NO. SR10626

PROJECT NAME AMKO Manufacturing Co.

LOCATION Bellmawr, N.J.

SUBJECT

ECRA Sampling Plan

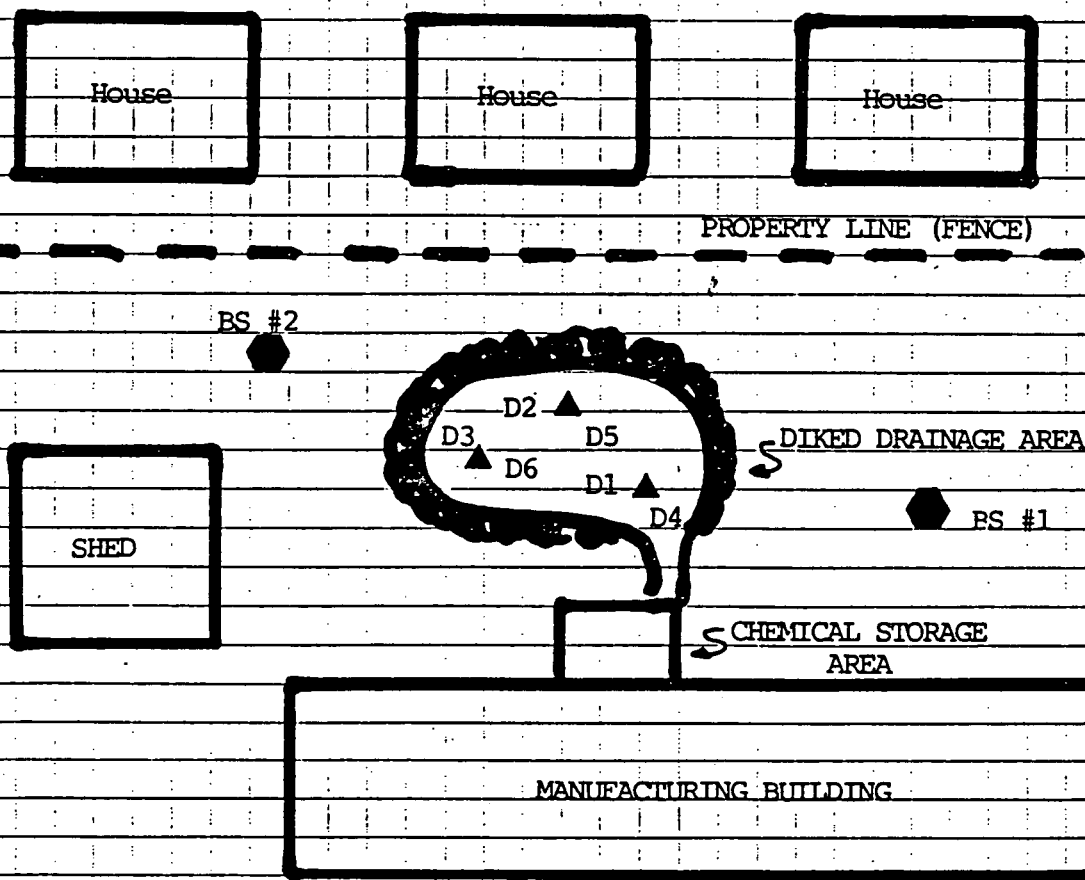
PREPARED BY RRP

DATE 12/31/84

CHECKED BY JWS

DATE 1/2/85

FIGURE 1



KEY: . BS - Background Sample
0" - 3"

. D1,2,3 - Drainage Sample
0" - 3"

. D4,5,6 - Drainage Sample
6" - 8"

REFERENCE NO. 6



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT

HAZARDOUS SITE MITIGATION ADMINISTRATION
CN 028, Trenton, N.J. 08625

MARWAN M. SADAT, P.E.
DIRECTOR

JORGE H. BERKOWITZ, PH.D.
ADMINISTRATOR

30 JAN 1985

Alvin Ginsberg, President
Flags, Inc.
41 Oak Ave.
Bellmawr, NJ 08031

RE: Flags, Inc.
41 Oak Avenue
Bellmawr, Camden County
ECRA Case #84-394

Dear Mr. Ginsberg:

Please be advised that your Negative Declaration dated December 20, 1984 submitted for the referenced industrial establishment pursuant to Section 4(a)2 of N.J.S.A. 13:1K-6 is hereby disapproved.

That document has been deemed inappropriate based upon the results of our inspection conducted on December 20, 1984 by a representative of this office. During that inspection, it was found that non-contact cooling water was discharged on the ground without a NJPDES permit.

No new Negative Declaration will be considered by this Department prior to (1) either ceasing the discharge or applying for an appropriate NJPDES and (2) demonstrating that the discharge to date has not contaminated the property or removing any contamination resulting there from.

Should you have any questions concerning the above, please contact the case manager at (609) 633-7141.

Sincerely,

Anthony J. McMahon, Chief
Bureau of Industrial Site Evaluation

HS111:dr

CERTIFIED

REFERENCE NO. 7



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT

HAZARDOUS SITE MITIGATION ADMINISTRATION
CN 028, Trenton, N.J. 08625

MARWAN M. SADAT, P.E.
DIRECTOR

JORGE H. BERKOWITZ, PH.D.
ADMINISTRATOR

MEMORANDUM

01 FEB 1985

TO: Mike Nalbhone, Case Manager - BISE
THROUGH: Rob Predale, Assistant Chief - EE/RA *R.P.*
FROM: Phil Sandine, Technical Coordinator - EE/RA *PS 28 Jan*
SUBJECT: Review of Sampling Plan for AMKO (Flags) in Bellmawr,
ECRA 84-394

These comments are in response to your referral of 11 January 1985, received 17 January 1985.

The site has been used for the manufacturing of surgical instruments. The sampling plan submitted indicated that only acids and trichloroethylene were used in the manufacturing process. Analysis proposed were pH, sulfate, chloride, nitrate and total organic carbon.

A review of the ECRA file indicated that degreaser waste had been dumped for 40 years in an area on site. The location of this area appears not to coincide with the diked drainage area, which is the area proposed for sampling. At a minimum, soil samples must be taken at a depth of about 18-24" in the degreaser dump waste area and analyzed for organic volatiles. If it cannot be documented that no other wastes were dumped in that area, then a full PP analysis (excluding the pesticide group except for PCBs) must be done. In addition, a 18-24" soil sample from within the drainage area, but near the chemical storage area, must also be taken and analyzed for organic volatiles.

The proposed D1, 2, 3 samples (0-3") are acceptable for pH sulfate, chloride and nitrate analysis. The 6-8" samples should be replaced with 15-18" samples. The proposed total organic carbon analysis is not needed and may be dropped.

A revised sampling plan with laboratory and field methodology should be submitted for review and approval.

HS103:ed

cc: Dr. M. Morris

received
04 FEB 1985

04 FEB 1985

REFERENCE NO. 8



ANALYTICAL INC.

28 Springdale Rd., Cherry Hill, N.J. 08003
(609) 751-1122 (215) 923-2068

April 19, 1985

received
23 APR 1985

AMKO Manufacturing Company
41 Oak Avenue
Bellmawr, New Jersey 08031

Attention: Alvin Ginsberg

Reference: Test Report No. SR11116

This report covers the analysis of four (4) solid samples taken by S-R Analytical, Inc. (S-R) on April 15, 1985. The following analysis was requested:

- . Volatile Organics

This report is organized in the following manner:

- . Methodology
- . Analytical Results
- . Quality Assurance Data

I. Methodology

Volatile Organics

Non-aqueous samples are prepared by adding a known weight of sample to a screw-cap test tube with 10 ml of methanol. The tube is sealed, agitated and allowed to sit in a freezer for no less than 1 hour. An aliquot of the methanol extract is then transferred to a 35 ml purge vessel along with 30 ml of DI Water, and an internal reference standard added for recovery purposes.

Aqueous samples are prepared by transferring an aliquot of the sample directly to a 35 ml purge vessel along with an internal reference standard.

Samples are then analyzed by purge-and-trap GC/MS/DS in accordance with the following method:

- . EPA Method 624, Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, July, 1982.

Detection Limits are reported in accordance with EPA Method 624, Federal Register, December 3, 1979.

II. Analytical Results

Volatile Organics

Sample Designation

<u>Constituent</u>	<u>SR11116-1</u> <u>D1 15"-18"</u>	<u>SR11116-2</u> <u>D-7 22"-24"</u>	<u>SR11116-2</u> <u>Duplicate</u>	<u>SR11116-3</u> <u>D8-22"-24"</u>	<u>SR11116-</u> <u>Backgrou</u> <u>Surface</u>
Bromomethane	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1
Methylene chloride	<1	<1	<1	<1	<1
1,1-Dichloroethylene	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
Trichloroethylene	<1	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
2-Chloroethyl vinyl ether	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
Tetrachloroethylene	<1	<1	<1	<1	<1
Toluene	<1	2.6	1.7	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1
Ethyl benzene	<1	<1	<1	<1	<1
Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)

Amko Manufacturing Company
Test Report No. SR11116
April 19, 1985
Page 4 of 4

III. Quality Assurance Data

Volatile Organics

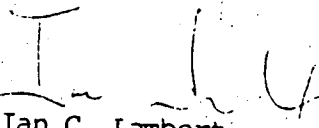
SR11116-1 plus Spike

<u>Constituent</u>	<u>Amount of Spike, ug</u>	<u>% Recovery</u>
Methylene chloride	1.0	75
1,1-Dichloroethylene	1.0	86
1,1-Dichloroethane	1.0	95
Chloroform	1.0	88
Carbon tetrachloride	1.0	95
1,2-Dichloropropane	1.0	102
Trichloroethylene	1.0	90
Dibromochloromethane	1.0	96
1,1,2-Trichloroethane	1.0	98
2-Chloroethyl vinyl ether	1.0	94
Tetrachloroethylene	1.0	96
Chlorobenzene	1.0	99

Should you have any questions concerning this test report, please don't hesitate to contact me.

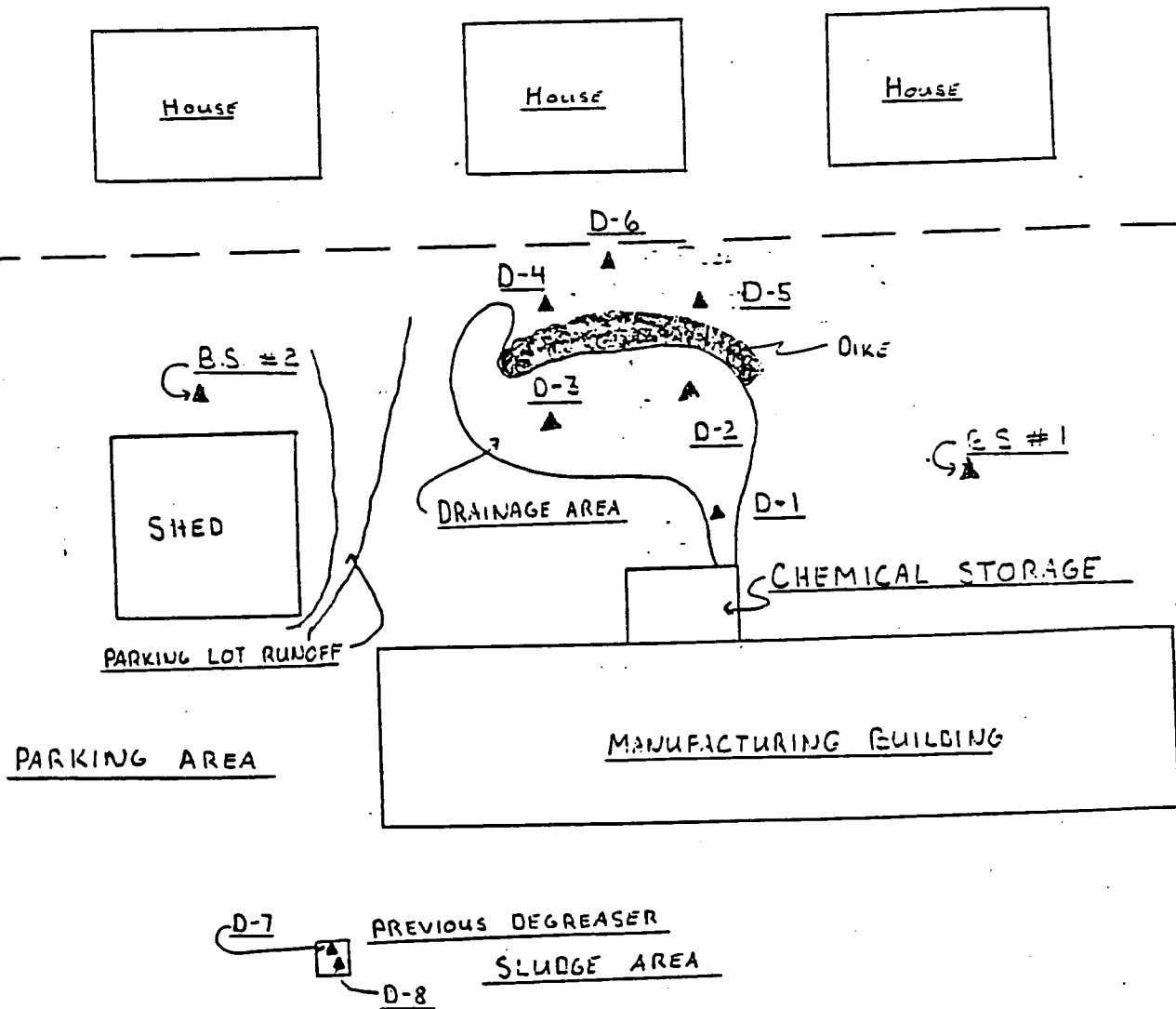
Respectfully submitted,

S-R ANALYTICAL, INC.


Ian C. Lambert
Laboratory Manager

ICL/mb

AMKO MANUFACTURING



REFERENCE NO. 9



ANALYTICAL INC.

28 Springdale Rd, Cherry Hill, N.J. 08003
(609) 751-1122 (215) 923-2068

May 1, 1985

AMKO Manufacturing Company
41 Oak Avenue
Bellmawr, New Jersey 08031

Attention: Alvin Ginsberg

Reference: Test Report No. SR11195

This report covers the analysis of two (2) solid samples submitted S-R Analytical, Inc. (S-R) on April 29, 1985. The following analysis was requested:

- . Volatile Organics

This report is organized in the following manner:

- . Methodology
- . Analytical Results
- . Quality Assurance Data

RECEIVED
MAY 6 10 46 AM '85
DIVISION OF
WASTE MANAGEMENT
HSMA-RISE

I. Methodology

Volatile Organics

Non-aqueous samples are prepared by adding a known weight of sample to a screw-cap test tube with 10 ml of methanol. The tube is sealed, agitated and allowed to sit in a freezer for no less than 1 hour. An aliquot of the methanol extract is then transferred to a 35 ml purge vessel along with 30 ml of DI Water, and an internal reference standard added for recovery purposes.

Aqueous samples are prepared by transferring an aliquot of the sample directly to a 35 ml purge vessel along with an internal reference standard.

Samples are then analyzed by purge-and-trap GC/MS/DS in accordance with the following method:

- EPA Method 624, Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, July, 1982.

Detection Limits are reported in accordance with EPA Method 624, Federal Register, December 3, 1979.

II. Analytical ResultsVolatile OrganicsSample Designation

<u>Constituent</u>	<u>blank</u>	<u>SR11195-1</u> <u>D7 4 ft.</u>	<u>SR11195-2</u> <u>D7 4.5 ft.</u>	<u>SR11195-2</u> <u>Duplicate</u>
Bromomethane	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1
Methylene chloride	<1	<1	<1	<1
1,1-Dichloroethylene	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1
trans-1,2-Dichloroethylene	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1
Trichloroethylene	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1
Benzene	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1
2-Chloroethyl vinyl ether	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1
Tetrachloroethylene	<1	<1	<1	<1
Toluene	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1
Ethyl benzene	<1	<1	<10	<10
Dichlorodifluoromethane	<10	<10	<1	<1
Trichlorofluoromethane	<1	<1		
Units	(ppm)	(ppm)	(ppm)	(ppm)

Amko Manufacturing Company
Test Report No. SR11195
May 1, 1985
Page 4 of 4

III. Quality Assurance Data

Volatile Organics

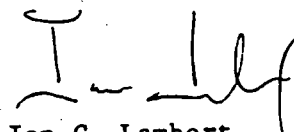
SR11195-1 plus Spike

<u>Constituent</u>	<u>Amount of Spike, ug</u>	<u>% Recovery</u>
trans-1,2-Dichloroethylene	1.0	69
1,2-Dichloroethane	1.0	76
1,1,1-Trichloroethane	1.0	73
Bromodichloromethane	1.0	74
trans-1,3-Dichloropropene	1.0	75
Benzene	1.0	76
cis-1,3-Dichloropropene	1.0	117
Bromoform	1.0	72
1,1,2,2-Tetrachloroethylene	1.0	79
Toluene	1.0	79
Ethyl benzene	1.0	80

Should you have any questions concerning this test report, please don't hesitate to contact me.

Respectfully submitted,

S-R ANALYTICAL, INC.



Ian C. Lambert
Laboratory Manager

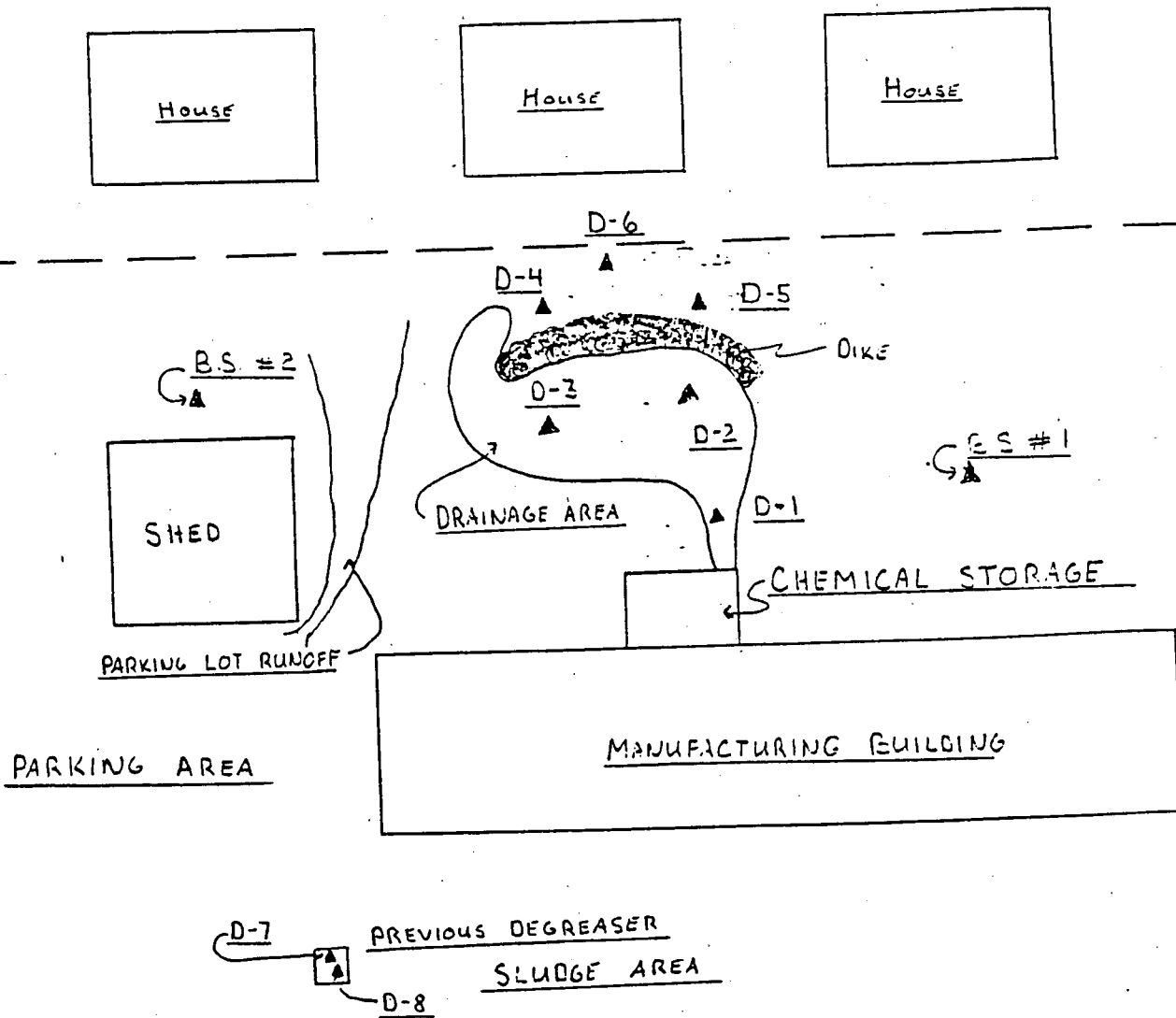
ICL/alc

cc NJDEP
Industrial Site Evaluation
428 E. State Street
Trenton, NJ 08031
Attn: Mike Nalbome

III. Facility Inspection/Plant Diagram

An inspection of the manufacturing facility was conducted by S-R personnel. The AMKO Company, during the process of making instruments, requires degreasing the metals with a solvent (Trichloroethylene). Once through (non-contact) cooling water condenses the vapor in the degreaser. This cooling water discharges into a small bucket, overflows into a wooden trough and onto a section of concrete floor inside a storage area for various chemicals used in manufacturing. These chemicals include: Nitric acid, Sulfuric acid, Muriatic acid, and Trichloroethylene. All materials are stored in containers that appear to be in excellent condition. This cooling water discharges to the outside and drains to a small diked area where it collects and then percolates into the ground. A detailed drawing is included. (See Figure I.)

AMKO MANUFACTURING



REFERENCE NO. 10

MAN - see me, pls
K

RECEIVED

Bellmawr Environmental Commission
P.O. Box 291
Bellmawr, N.J. 08031
Feb. 4, 1986
FLAGD
54344

FEB 6 9 22 AM '86

ECRA
Mr. J. Goliszewski
Site Evaluations
Bureau of Industrial Site
428 E State St.
Trenton, N.J. 08625

DIVISION OF
WASTE MANAGEMENT
HSMA-105E

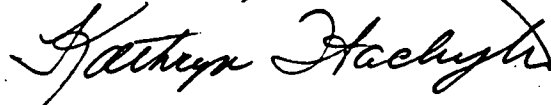
Re: AMKO Manufacturing Co.
41 Oak Ave.
Bellmawr, N.J.

Dear Mr. Goliszewski,

On Jan. 21, 1986 Mr. Purnell, the buyer of 41 Oak Ave. (formerly known as AMKO Surgical Ins. Mfg. Co.) applied for a variance with the Zoning Board. The variance was approved contingent upon the results from ECRA. At this meeting Mr. Dennis O'Brien, the lawyer representing the buyer, stated that ECRA was notified, and presently is testing this site.

On Feb. 3, 1986 at the Planning Board meeting, Mr. O'Brien (lawyer) applied for permission for a warehouse to be built on the premises. Due to the previous complaints of some neighbors that chemicals were dumped on the property and the sewerage septic tank system frequently overflowed, I brought up the question of ECRA involvement. Mr. O'Brien stated that on Jan. 16, 1986 ECRA tested the property and he is awaiting the results. At one point Mr. O'Brien stated that AMKO previously operating at 41 Oak Ave., was involved with hazardous wastes. Based on some of this information and our concern, we would like ECRA to update us with its findings. Please send us information regarding the type of chemicals and concentrations found on the above property. Waiting to hear from you.

Sincerely,



Kathryn Stachejko
Secretary

REFERENCE NO. 11

Please return as quickly as possible

LOAN COPY

GEOLOGY AND GROUND-WATER RESOURCES OF CAMDEN COUNTY, NEW JERSEY

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations 76-76

Prepared in cooperation with
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL
PROTECTION, DIVISION OF WATER RESOURCES

LOAN COPY

Please return within 30 days to:

U.S. Geological Survey, WRD
Mountain View Office Park
810 Bear Tavern Road
Suite 206
West Trenton, New Jersey 08628

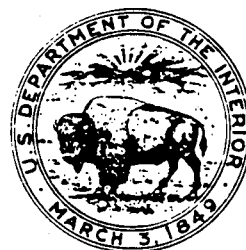


GEOLOGY AND GROUND-WATER RESOURCES OF CAMDEN COUNTY, NEW JERSEY

By George M. Farlekas, Bronius Nemickas, and Harold E. Gill

U.S. GEOLOGICAL SURVEY
Water-Resources Investigations 76-76

Prepared in cooperation with
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL
PROTECTION, DIVISION OF WATER RESOURCES



June 1976

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GLOSSARY

Aquifer. A formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian aquifer. An aquifer containing water under sufficient pressure to rise above the top of the aquifer when penetrated by a well.

Coefficient of permeability (field). See hydraulic conductivity.

Coefficient of storage. See storage coefficient.

Confining bed. A body of relatively impermeable material stratigraphically adjacent to one or more aquifers. The hydraulic conductivity may range from nearly zero to some value distinctly lower than that of the aquifer.

Drawdown. The lowering of the water table or artesian water level caused by pumping.

Head, static. The height above a standard datum of the surface of a column of water (or other liquid) that can be supported by the static pressure at a given point. Head, when used alone, is understood to mean static head.

Hydraulic conductivity. A measure of the ability of material to transmit water. If the porous medium is isotropic and the fluid is homogeneous, the medium has a hydraulic conductivity of unit length per unit time if it will transmit in unit time a unit volume of water at the prevailing kinematic viscosity through a cross section of unit area, measured at right angles to the direction of flow, under a hydraulic gradient of unit change in head over unit length of flow path. The Geological Survey measures length in feet or meters and time in days. To convert from field coefficient of permeability measured in gallons per day per square foot to hydraulic conductivity measured in feet per day multiply the field coefficient by 0.134. To convert from field coefficient of permeability measured in gallons per day per square foot to hydraulic conductivity measured in meters per day multiply the field coefficient by 0.041.

Permeability. The ability of a rock or earth material to transmit water in response to head differences.

Porosity. The porosity of a rock or soil is its property of containing interstices or voids and may be expressed quantitatively as the ratio of the volume of its interstices to its total volume. It may be expressed as a decimal fraction or as a percentage.

Potentiometric surface. A surface which represents the static head in an aquifer. The potentiometric surface is defined by the levels to which water will rise in tightly cased wells. See head, static.

Recharge. The process by which water is added to an aquifer.

Runoff (average annual, in inches). The depth to which the drainage area would be covered if all the runoff for an average year were uniformly distributed on it.

Specific capacity (of a well). The rate of discharge of water from the well divided by the drawdown in the well. A properly constructed well can be used as a measure of the aquifer's transmissivity; a high specific capacity suggests a high transmissivity while a low specific capacity suggests a low transmissivity. The specific capacity of a well is a function of well construction and development, the aquifer's storage coefficient, and the portion of the aquifer in which the well is screened.

Specific yield. In general terms, the specific yield is the water yielded from a water-bearing material by gravity drainage, as occurs when the water table declines. More exactly the specific yield of a rock or soil is the ratio of 1) the volume of water which, after being saturated, the rock or soil will yield by gravity to 2) the volume of the rock or soil.

Storage coefficient. The volume of water a porous medium releases from or takes into storage per unit surface area of the aquifer per unit change in head.

In a confined water body the water derived from storage with head decline comes from expansion of the water and compression of the aquifer; similarly, water added to storage with a rise in head is accommodated partly by compression of the water and partly by expansion of the aquifer. In an unconfined water

body the amount of water derived from or added to the aquifer generally is negligible compared to that involved in gravity drainage or filling of pores; hence, in an unconfined water body the storage coefficient is virtually equal to the specific yield.

Water table. That surface in an unconfined water body at which the pressure is atmospheric.

CONVERSION FACTORS

Cubic feet

x 0.02832 = cubic meters

x 7.48052 = gallons

x 28.32 = liters

Cubic feet per second

x 0.646317 = million gallons per day

x 448.831 = gallons per minute

Cubic meters

x 10^6 = cubic centimeters

x 35.31 = cubic feet

x 264.2 = gallons

x 10^3 = liters

Feet

x 30.48 = centimeters

x 0.3048 = meters

Gallons

x 3.785×10^{-3} = cubic meters

x 3.785 = liters

Gallons per minute

x 2.228×10^{-3} = cubic feet per second

x 0.06308 = liters per second

CONVERSION FACTORS--Continued

Kilometer

x 10^5	=	centimeters
x 3281	=	feet
x 10^3	=	meters
x 0.6214	=	miles

Liters

x 0.0353	=	cubic feet
x 10^3	=	cubic meters
x 0.2642	=	gallons

Liters per second

x 5.886×10^{-4}	=	cubic feet per second
x 4.403×10^{-3}	=	gallons per second

Meters

x 100	=	centimeters
x 3.281	=	feet
x 39.37	=	inches
x 10^{-3}	=	kilometers
x 10^{-3}	=	millimeters

Miles (statute, U.S.)

x 1.609×10^5	=	centimeters
x 5,280	=	feet
x 1.609	=	kilometers

CONVERSION FACTORS--Continued

Milligrams per liter

x 1 = parts per million

Millimeter

x 0.1 = centimeter

x 0.03937 = inches

Square kilometers

x 0.3061 = square miles

Square meters

x 10.76 = square feet

x 3.861×10^{-7} = square miles

Square miles

x 2.59 = square kilometers

CONVERSION FACTORS--Continued

Relation of Units of Hydraulic Conductivity and Transmissivity

[Equivalent values shown in same horizontal lines. *indicates abandoned term]

A. Hydraulic conductivity

Hydraulic conductivity (K)		*Field coefficient of permeability (P_f)
Feet per day (ft day ⁻¹)	Meters per day (m day ⁻¹)	*Gallons per day per square foot *(gal day ⁻¹ ft ⁻²)
One	0.305	7.48
3.28	One	24.5
.134	.041	One

B. Transmissivity (T)

Square feet per day (ft ² day ⁻¹)	Square meters per day (m ² day ⁻¹)	*Gallons per day per foot *(gal day ⁻¹ ft ⁻¹)
One	0.0929	7.48
10.76	One	80.5
.134	.0124	One

A B S T R A C T

Camden County, New Jersey, is located in the Philadelphia-Camden metropolitan area. The western edge of the county is urban and industrial in character. The central part is less industrial and more suburban in character, and the eastern part is sparsely populated and predominantly agricultural, although urbanization is advancing eastward quite rapidly.

Camden County is in the Atlantic Coastal Plain physiographic province. Underlying the county are unconsolidated sediments of Quaternary, Tertiary, and Cretaceous age, consisting of mostly alternating sands, silts, and clays. The sediments dip gently to the southeast and thicken from 40 feet at the Delaware River to 2,900 feet at the Camden-Atlantic County line. Below the unconsolidated sediments is the pre-Cretaceous crystalline bedrock.

The major fresh-water aquifers in Camden County are sands and gravels of Cretaceous and Tertiary age in the Potomac Group and the Raritan and Magothy Formations; the Cohansey Sand; the Wenonah Formation-Mount Laurel Sand; and the Englishtown Formation. Minor aquifers are found in parts of the Merchantville Formation, the undifferentiated Vincentown and Manasquan Formations, and the Kirkwood Formation. Saturated sands and gravels in the surficial deposits of Quaternary age where in direct contact are commonly hydraulically connected to the underlying aquifers.

The rate of ground-water withdrawal for Camden County was 68 mgd (million gallons per day) in 1966. This was the largest average annual county pumpage in the State in 1966. Eighty-five percent (56 mgd) was pumped from the aquifer system in the Potomac Group and the Raritan and Magothy Formations.

The potentiometric surfaces of all the major artesian aquifers in Camden County declined from 1900 to 1970 as a result of pumping. The largest decline occurred in the aquifer system in the Potomac Group and the Raritan and Magothy Formations. At Haddon Heights, in the western part of the county, the potentiometric surface declined about 110 feet from 1900 to 1968. The potentiometric surface of the aquifer in the Wenonah Formation-Mount Laurel Sand declined 43 feet in about 60 years in the vicinity of Berlin Borough.

The chemical quality of ground water in Camden County

is generally satisfactory for most uses. Concentrations of iron greater than the State's potable-water standard of 0.3 milligrams per liter are found in some areas of the Potomac-Raritan-Magothy aquifer system, in scattered locations in the Wenonah Formation-Mount Laurel Sand, and in the Cohansey Sand. In general, higher values of dissolved solids, sulfate, and chloride occur in water in and near the outcrop of the Potomac-Raritan-Magothy aquifer system than downdip in the aquifer. In the southeastern part of the county chloride concentrations in excess of 250 milligrams per liter can be found in the same aquifer system. The high chloride water has remained in the aquifer system from the time of deposition or has re-entered the system from the ocean after changes in sea level since Pleistocene time.

Contamination of water in the Potomac-Raritan-Magothy aquifer system in the Philadelphia area has created a potential water-quality problem for the Camden area near the Delaware River. Contaminated ground water in Philadelphia, with high concentrations of sulfate and dissolved solids, is moving under the Delaware River toward Eagle Point in Gloucester County near the Camden County line. Decrease of pumping in Philadelphia and simultaneous increase of pumping in Camden and Gloucester Counties tends to draw ground water from Philadelphia toward New Jersey.

The greatest potential for additional ground-water development in the county is from the Cohansey Sand which is generally an unconfined aquifer. The Cohansey also has the greatest possibility of ground-water contamination because of the local effect of wastes from suburban and industrial development and the shallow depth of the Cohansey aquifer.

INTRODUCTION

PURPOSE AND SCOPE

This investigation of the ground-water resources and geology of Camden County is part of a statewide program of studies of the water resources of New Jersey. It was conducted by the U. S. Geological Survey in cooperation with the New Jersey State Department of Environmental Protection, Division of Water Resources.

Almost all public, industrial, and irrigation water supplies in Camden County are obtained from ground-water sources. The ground-water environment and its hydrologic and chemical characteristics must be understood in order to facilitate an orderly and safe development of this natural resource. The purpose of this investigation is to collect and interpret the basic hydrologic and geologic data and to appraise and report on the ground-water resources of Camden County. The objectives were to define the thickness and areal extent of the hydrologic units, evaluate the hydraulic characteristics of the aquifers, determine the effect of pumpage on the water levels of the area, define the source of recharge of the aquifers, and to evaluate the chemical quality of the ground water.

LOCATION AND EXTENT

Camden County is in the southwestern part of New Jersey (fig. 1). It is bounded by Burlington County on the northeast, Atlantic County on the southeast, Gloucester County on the southwest, and by the Delaware River on the northwest. The county is part of the Philadelphia standard metropolitan statistical area and occupies an area of 222.2 square miles. The City of Philadelphia, fourth largest city in the United States, is located across the Delaware River from Camden County.

PERSONNEL AND SUPERVISION

The investigation was made by the U. S. Geological Survey in cooperation with the State Department of Environmental Protection, Division of Water Resources. The

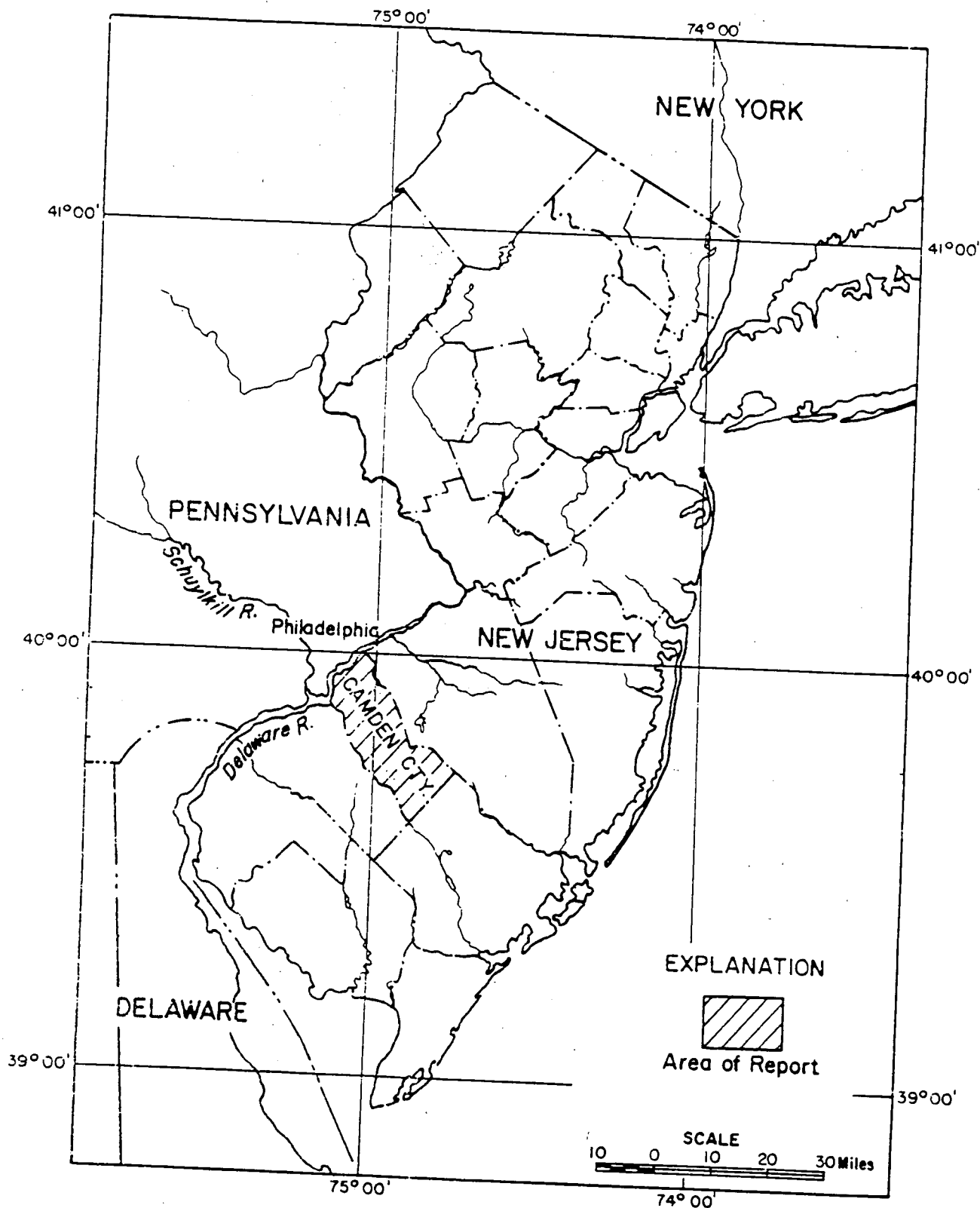


Figure 1. — Map of New Jersey showing location of Camden County.

work was performed under the general supervision of John E. McCall, District Chief, and under direct supervision of William Kam, Supervisory Hydrologist. The authors were assigned to the project in June 1969. Most of the material on the Potomac-Raritan-Magothy aquifer system in this report is from an unpublished study on the aquifer system from Trenton to Salem, New Jersey, by Gill and Farlekas. George M. Farlekas collected, compiled, and interpreted the data for the geologic units younger than the Magothy Formation up to and including the Mount Laurel Sand. Bronius Nemickas was responsible for the work on the geologic units younger than the Mount Laurel Sand. Data for wells tapping units younger than the Magothy were obtained from 1) field work in the summer and fall of 1969, 2) selected data from E. Donsky (1963), and 3) unpublished data from the Great Egg Harbor River basin compiled by P. R. Seaber in 1958. Data collection and analysis for the project was essentially completed in July 1970.

PREVIOUS INVESTIGATIONS

The geology and ground-water resources of the Camden area have been studied intermittently during the past 100 years. Almost all of the early information published in the annual reports of the State Geologist is limited to general descriptions of the water-bearing formations, with lists of wells tapping principal aquifers. Further information on the geology and hydrology of the Camden area was published by Bascom (1904) and Bascom and others (1909). The U. S. Geological Survey began ground-water investigations in New Jersey in 1923 in cooperation with the State. In 1932 a report on the ground-water supplies of the Camden area was published (Thompson, 1932). A progress report on the ground-water resources of the Lower Delaware Valley study was released in 1952 (Barksdale and Graham). The results of this tri-state study, which included Camden County, were reported later by Barksdale and others (1958). A report on the ground-water resources of the nearby Philadelphia Navy Base was prepared by Graham and Kammerer (1954). Greenman and others (1961) prepared a report on the ground-water resources of the Coastal Plain of southeastern Pennsylvania, which included the City of Philadelphia. A basic-data report on wells in Camden County was written by Donsky (1963).

Completed investigations of the geology and ground-water resources of neighboring counties include Burlington County (Rush, 1968), Gloucester County (Hardt and Hilton, 1969), and Atlantic County (Clark and others, 1968).

Iron in water of the aquifer system in the Potomac Group and Raritan and Magothy Formations has been investigated by Langmuir (1969a and 1969b). Regional geology, hydrology, and geochemistry of the aquifer system in the Potomac Group and Raritan and Magothy Formations from Salem County north to Trenton has been investigated by Gill and Farlekas (written commun., 1969).

Detailed geologic field work has been made in a number of 7-1/2 minute quadrangle areas in Burlington County (Minard, Owens, and Nichols, 1964, Owens and Minard, 1962 and 1964a), and one quadrangle in Salem County (Minard, 1965). A geologic map of part of the Coastal Plain at a scale of 1:250,000 was compiled by J. P. Owens in U. S. Geological Survey (1967).

WELL-NUMBERING AND LOCATION SYSTEM

Wells discussed in the report have been located on U. S. Geological Survey 7-1/2 minute quadrangle maps and are shown in figure 2. The municipality and the latitude and longitude in degrees, minutes, and seconds for each well were determined from the 7-1/2 minute quadrangles. Each well (table 1) has a unique number. The first six numbers and the letter N (for North) are the latitude for the well. The fifteenth number is the sequential number, usually "1". If more than one well is located at the same site, the second well will have a sequential number of 2 and the third well a sequential number of 3; with as many sequential numbers as there are wells at that latitude and longitude. The wells (table 1) are listed by municipality and numbered serially in order of decreasing latitude. Decreasing longitude is used to determine the order of the wells if two or more wells have the same latitudes.

ACKNOWLEDGMENTS

The authors gratefully acknowledge the assistance of officials and private individuals of the Camden area who furnished information on their wells and permitted access to the wells for the collection of water samples and geophysical and hydrologic data. The staff of the New Jersey Division of Water Resources was helpful in furnishing data from their files. Special thanks are extended to the many well drillers, particularly A. C. Schultes and Sons, Layne-New York Inc., and A. A. and M., for their time and assistance in furnishing well data and geophysical logs.

GEOGRAPHY

TOPOGRAPHY AND DRAINAGE

Camden County lies entirely within the Atlantic Coastal Plain physiographic province, which extends from Massachusetts to Florida. The county is characterized as a low lying, gently rolling plain that ranges in altitude from sea level to about 220 feet. The maximum altitude of about 220 feet is located in the southeastern part of Voorhees Township.

A generalized topographic map of Camden County outlining the major drainage basins is shown in figure 3. In the northeastern part of the county the major streams, the Rancocas, Pennsauken, Newton, and Big Timber Creeks and the Cooper River, flow northeast and north into the Delaware River. In the southeastern part of the county the Mullica and Great Egg Harbor Rivers flow southeast towards the Atlantic Ocean.

Topographic highs in the central part of the county form the drainage divides between the basins. Topographic lows are in the southeastern part of the county and in the northern part of the county along the Delaware River and along streams flowing into the Delaware River.

CLIMATE

The climate of Camden County is continental, generally moderate, with mild winters, warm summers, and generally evenly distributed rainfall. The prevailing direction of air movement is from west to east. During the summer months the prevailing wind direction is from the southwest.

The average annual temperature of the Philadelphia Weather Bureau station for the period 1931-60 was 53.3°F (degrees Fahrenheit). Normal daily maximum and minimum are 40.3°F and 24.3°F for January, and 85.9°F and 65.2°F for July.

Average annual precipitation at the Philadelphia Weather Bureau station for 1931-60 was 42.48 inches. Precipitation is generally distributed evenly throughout the year, with the summer precipitation characterized by localized thundershowers. The winter precipitation is usually more widespread and less intense. Precipitation data for the same

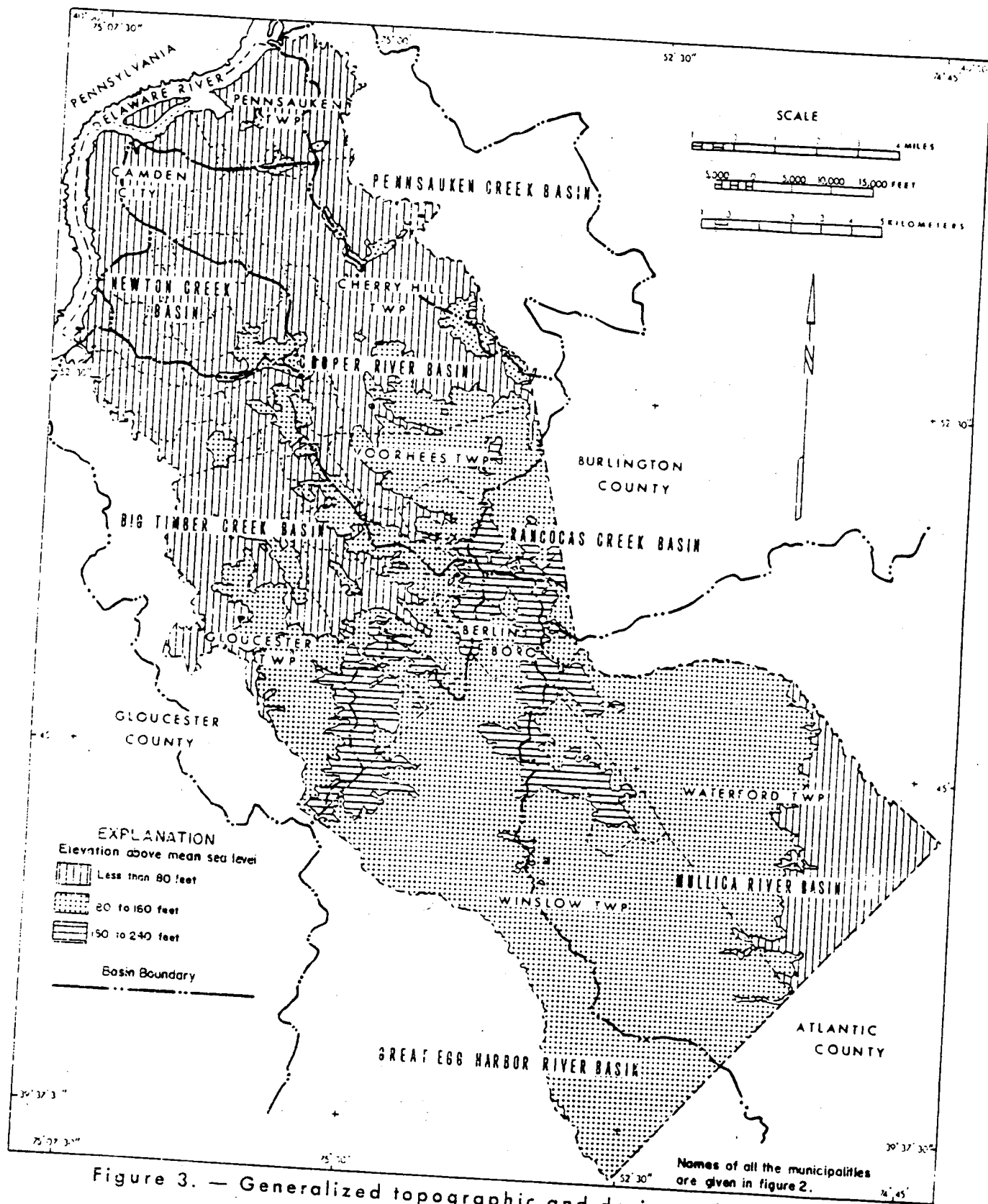


Figure 3. — Generalized topographic and drainage basin map of Camden County.

period indicate that the average of the wettest month of each year is 4.63 inches, while the average of the driest month of each year is 2.78 inches.

POPULATION AND ECONOMY

Camden County had a population of 456,291 in 1970, 392,035 in 1960, and 300,743 in 1950 (U. S. Bureau of Census). The increase from 1960 to 1970 was 16.4 percent and the increase from 1950 to 1960 was more than 30 percent. The most densely populated area is in the northern part of the county. In 1960 the municipalities north of Gloucester Township, Somerdale Borough, and Voorhees Township contained 82 percent of the total population, whereas the land area is only 31 percent. In 1970 the same municipalities contained 77 percent of the county's total population indicating a shift in population toward the southeast.

Camden County is in the Philadelphia metropolitan area and many of the county's residents work in the city or nearby counties. A large work force is employed by manufacturing companies located along the western edge of the county in the area near the Delaware River. The cities of Camden and Gloucester, as well as Pennsauken Township, have much of the manufacturing of the county, although a number of new manufacturing centers are being developed east of the New Jersey Turnpike. Three municipalities, Waterford and Winslow Townships and Chesilhurst Borough, have the largest proportion of land in the county used for agriculture. The percentage of land area used for farms in Camden County has been decreasing in recent years. The U. S. Department of Commerce, Bureau of Census reports indicate that the land area used for farms in Camden County was 8.6 percent in 1969, 10.2 percent in 1964, and 13.7 percent in 1959.

GEOLOGY

STRATIGRAPHY AND STRUCTURE

All exposed geologic units in Camden County are sedimentary and for the most part unconsolidated. They are part of the Atlantic Coastal Plain and range in age from Early Cretaceous to Quaternary. Figure 4 is a geologic map of Camden County delineating the outcrop area of the Cretaceous and Tertiary age sediments. Figures 5 and 6 show two geologic

sections of the Coastal Plain sediments in Camden County. The Cretaceous and Tertiary sediments dip gently to the southeast with the oldest sediments cropping out at the Delaware River. In general, the older the sediments are, the greater the dip. The Quaternary formations are essentially flat-lying beds that overlie the Cretaceous and Tertiary sediments.

Underlying the sediments of the Coastal Plain in Camden County are crystalline rocks of pre-Cretaceous age. The surface of the crystalline rocks slopes towards the southeast. The altitude of the crystalline rock surface is about 40 feet below mean sea level at the Delaware River in the vicinity of the Benjamin Franklin Bridge and about 2,800 feet below mean sea level at the Camden-Atlantic County line.

The formations present in Camden County and their water-bearing properties are described in table 2. Also given is the general lithology and range in thickness of the formations.

GEOLOGIC HISTORY

During the Precambrian a great thickness of sediments was deposited in the area. The sediments included sands, silts, clays, and carbonates. The sediments were buried by additional sediments, metamorphosed, and subsequently uplifted during Paleozoic time. Part of the sediments were reconstituted into the metamorphic rocks known as the Wissahickon Formation. In the Camden County area a period of erosion occurred in the Paleozoic Era and continued into the Mesozoic Era, extending through Triassic and Jurassic time. The next sequence of sediments found are the Cretaceous units above the metamorphic rocks. During Cretaceous time sands, clays, and silts were deposited in a deltaic complex somewhat similar to modern deltas. The streams supplying sediment to the deltaic complex flowed from the west-northwest to the east-southeast. They provided the fluvial sediments that make up the Potomac Group and the Raritan and Magothy Formations. In Late Cretaceous time marine seas inundated the area. The marine invasions were cyclic in nature rather than continuous, and periods of complete withdrawal of the sea occurred. During Late Cretaceous time deposits in the Camden area were mainly of deltaic, beach, and marine origin.

The marine environment persisted into Tertiary time, but the marine inundations were not as extensive as those in the Cretaceous. Early Tertiary deposits (Paleocene to Middle Eocene) are marine in origin; whereas, middle and late Tertiary

deposits (Miocene and Pliocene) are either beach or deltaic deposits.

Sands and gravels of fluvial origin were deposited during early Pleistocene time of the Quaternary Period in extensive areas of Camden County. These deposits, known as the Bridgeton and Pennsauken Formations, may be the result of several early glacial or interglacial stages. In middle Pleistocene time sea level rose during interglacial stage. This resulted in a marine invasion of the area along the Delaware River in Camden. Clays and silts were deposited in the low-lying areas while fluvial material such as sands and gravels were deposited in the higher areas.

As the Wisconsin ice sheet advanced into the northern parts of Pennsylvania and New Jersey, sea level declined and the sea withdrew from the Camden area. Glacial meltwaters deposited sands, silts, and clays. In addition, eolian materials were deposited. Sea level rose to its present level with the withdrawal of the Wisconsin glacier. Recent measurements of sea level suggest that it is still rising.

GROUND-WATER QUALITY

Ground water contains dissolved mineral matter as the result of leaching of soluble material, primarily from the soils, sediments, or rocks through which the water moves. Thus, the natural chemical characteristics of ground water are a function of time, pressure, temperature, composition, and solubility of the minerals with which the water is in contact. Consequently, the quality of ground water may vary greatly from one place to another and from one aquifer to another. Superimposed on the natural chemical characteristics of ground water is deterioration of the quality of water caused by human activities, such as the utilization of unlined industrial-retention ponds, waste-disposal wells, and improperly located or constructed sanitary landfills and septic tanks.

Pumping also can have an effect on the local quality of ground water. Changes in the potentiometric surface caused by pumping may change the direction of movement of water or greatly accelerate the movement. Thus, ground water of poor quality may move into centers of pumping. Salt water also may move from adjacent aquifers or from tidal streams into the pumped aquifer.

Water-quality standards vary widely depending on the

intended use of the water. A particular industry may have requirements for water within a narrow range of a minor constituent. If the concentration is beyond this range the water may not be suitable for the particular use without treatment. The same water, however, may be acceptable for public-water supply. The Potable Water Standards of the New Jersey Department of Environmental Protection (1970) for some chemical constituents are as follows:

<u>Chemical constituents</u>	<u>Maximum concentrations (mg/l)</u>
Chloride (Cl)	250
Fluoride (F)	1.5
Hardness (as CaCO ₃)	150
Iron (Fe)	.3
Manganese (Mn)	.05
Nitrate (NO ₃ -N)	30
Sodium (Na)	50
Sulfate (SO ₄)	250
Dissolved solids	500

The source and significance of dissolved-mineral constituents and physical properties of ground water in Camden County are given in table 3.

Regional water-quality studies have been made for several aquifers in Camden County and vicinity. The aquifers are 1) Potomac-Raritan-Magothy aquifer system (Langmuir, 1969a and 1969b, and Gill and Farlekas, written commun., 1969); 2) the Englishtown aquifer (Seaber, 1965); and 3) the Cohansey Sand (Rhodehamel, 1966). Water-quality data for the neighboring counties are given in ground-water reports for Burlington (Rush, 1962 and 1968), Gloucester (Hardt and Hilton, 1969), and Atlantic Counties (Clark and others, 1968). The quality of water data for Camden County are given in table 4. The quality of water data for each aquifer is discussed under the appropriate sections of the individual formations.

GEOLOGIC FORMATIONS AND THEIR HYDROLOGIC CHARACTERISTICS

PRE-CRETACEOUS CRYSTALLINE ROCKS

Geology

Crystalline rocks of pre-Cretaceous age underlie the Coastal Plain sediments in Camden County. The crystalline rocks at or near the surface near Camden are part of the Wissahickon Formation. Much of the data available on the lithology and age of the rocks are from areas where the rocks are at or near the surface. Information about these rocks at depth is from drillers' logs and seismic studies.

The Wissahickon Formation is a medium to coarse-grained foliated crystalline rock that varies in composition and texture from schist to gneiss. The lithology of the formation varies greatly in both vertical and horizontal directions. The formation was probably a sedimentary series of sandstone, siltstone, and shale that have been deformed and re-crystallized by metamorphism.

The outcrop area of the Wissahickon Formation near the project area is in Pennsylvania a few miles west of the Delaware River. The formation is near the surface in the Camden City area near the Delaware River. The depth to the Wissahickon Formation at the Delaware River in the vicinity of the Benjamin Franklin Bridge is about 60 feet. The configuration of the crystalline rocks is shown in figure 7.

Hydrology

Few wells have been drilled for water supply in the crystalline rocks below the Coastal Plain of New Jersey. Two wells were drilled 600 feet into the Wissahickon Formation in Burlington County near the Delaware River. Neither well produced sufficient water to be useful to their owners. The data from these and other wells drilled into the crystalline rocks indicate that development of these rocks as a source of a large ground-water supply is unlikely.

Although the crystalline rocks do not produce a large quantity of water, they are hydrologically important. The basement rocks form a basal confining unit for the overlying unconsolidated aquifers. In addition, the configuration of the bedrock surface is hydrologically important. During Cretaceous and pre-Cretaceous time streams incised major river channels in the bedrock surface. These west to east-trending channels are filled with highly permeable Coastal Plain sediments (Gill and Farlekas, written commun., 1969).

MESOZOIC ERATHEM

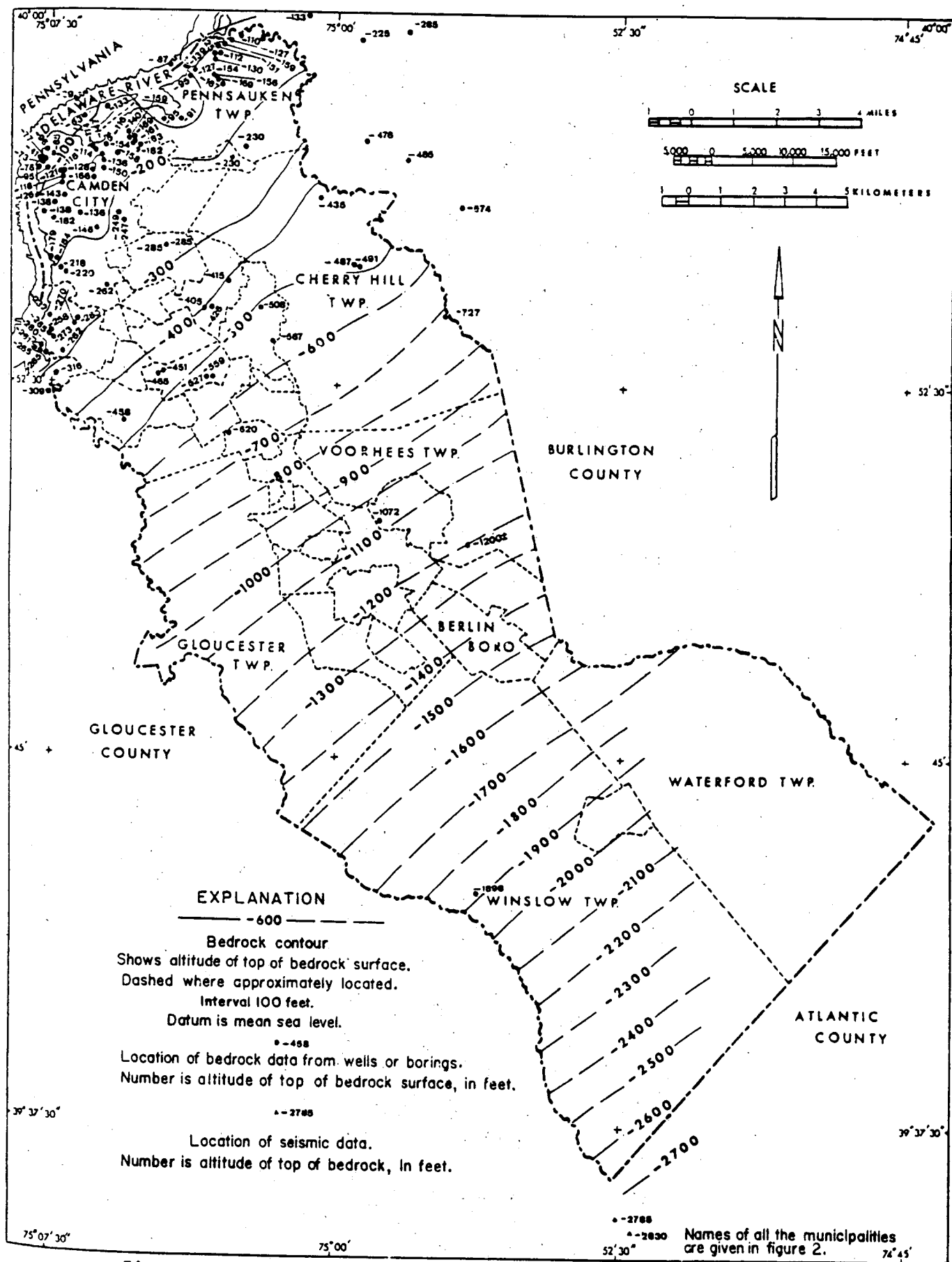


Figure 7. — Configuration of the bedrock surface beneath the Coastal Plain in Camden County.

Cretaceous System

Potomac Group and the Raritan and Magothy Formations

Regional Setting and Stratigraphic Framework

The Potomac Group and the Raritan and Magothy Formations are fluvial-marginal marine sediments of Early to Late Cretaceous age and overlie the pre-Cretaceous crystalline rocks. These sediments make up an extensive part of the Coastal Plain sediments in New Jersey and in the adjacent states. Major structures which contain the greatest thickness of sediments are the Salisbury embayment (Richards, 1945) in Delaware and the Raritan embayment in the vicinity of Raritan Bay and eastern Long Island. The area between these two embayments, which includes Camden County, contains smaller arches and troughs. The outcrop area of the Potomac Group and Raritan and Magothy Formations in Camden County (21 square miles in area) is in the northwestern part of the county near the Delaware River. The units are extensively overlain by permeable Pleistocene deposits in the outcrop area.

The Potomac Group and the Raritan and Magothy Formations form a wedge-shaped body that thickens in a downdip direction and is underlain by the crystalline basement. The configuration of the crystalline rocks is shown in figure 7. The upper limit of the wedge-shaped body is the contact between the Merchantville Formation and the top of the Magothy Formation (fig. 8). The difference between the basement and the top of the Magothy is the total thickness of Potomac Group and the Raritan and Magothy Formations (fig. 9).

In Camden County the thickness of the Potomac Group and Raritan and Magothy Formations ranges from approximately 260 feet at the Collingswood well 7 (CO 7), located near the outcrop area, to approximately 1,210 feet at the New Brooklyn Park test well (WI 27). This is shown on the thickness map in figure 9. The distance between the two wells is 13 miles.

Correlation of part of the Cretaceous stratigraphic section in northern New Jersey and Maryland as determined by Wolfe and Pakiser (1971) is given below.

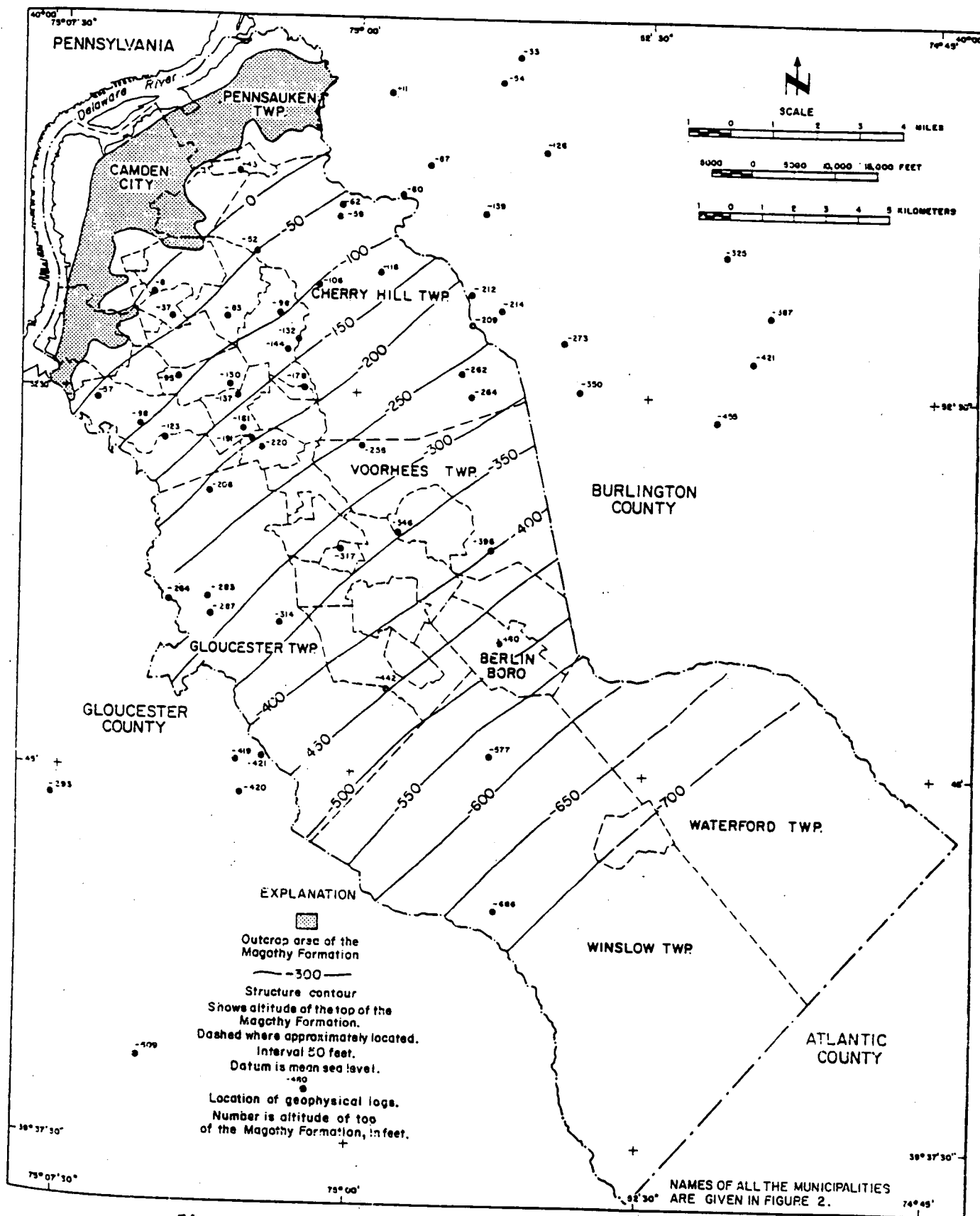
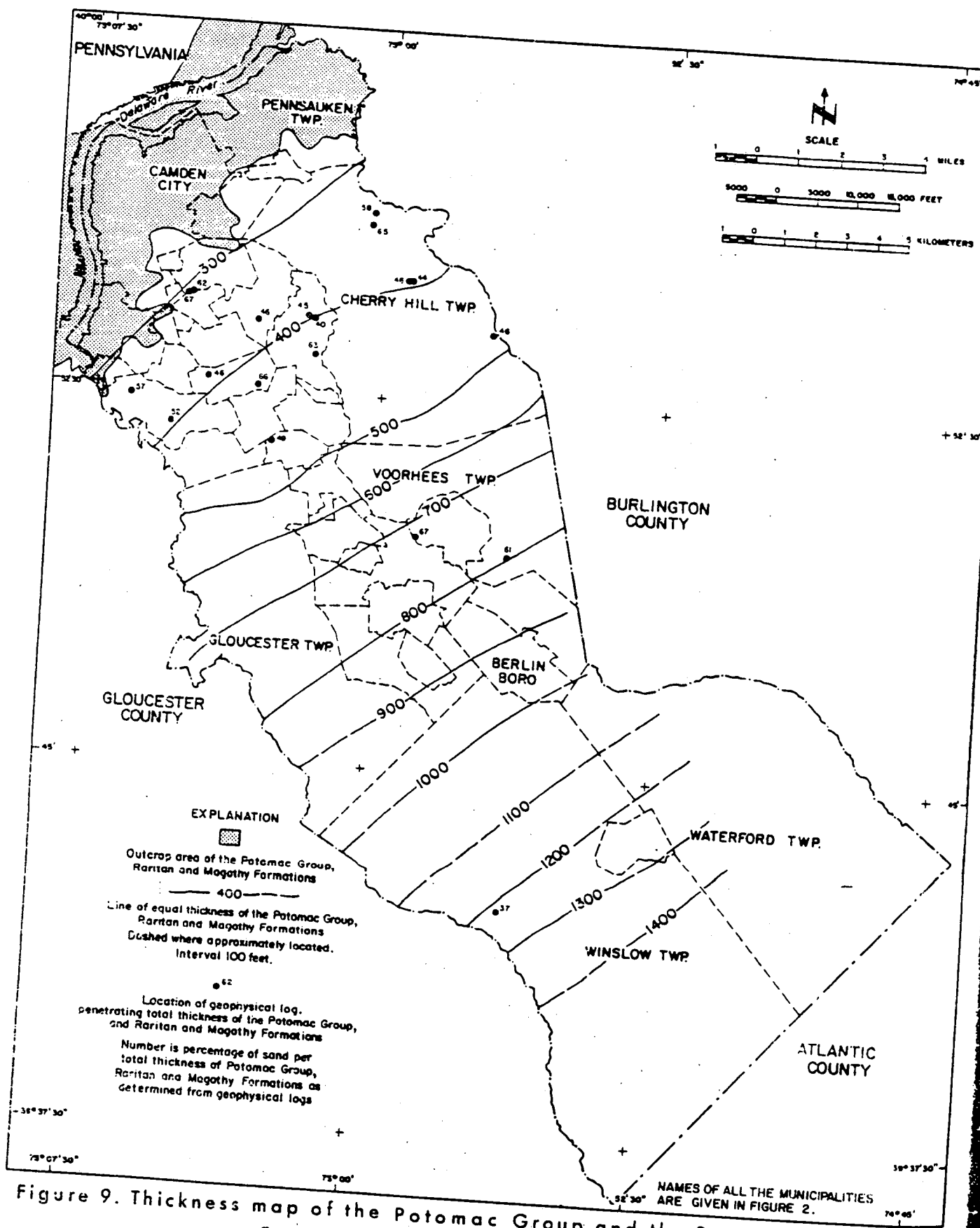


Figure 8. — Structure contour map of the top of the Magothy Formation in Camden County.



SERIES	STAGE	NORTHERN NEW JERSEY	MARYLAND
Upper Cretaceous	Campanian (lowermost)	Cliffwood beds Morgan beds	Magathy Formation
	Santonian	Ambay stone ware clay	Magathy Formation
		Old Bridge Sand Member?	
	Coniacian		
	Turonian		
	Cenomanian	South Ambay fire clay Sayreville Sand Mbr. Woodbridge clay Farrington Sand Mbr. Raritan fire clay	Raritan Formation
Lower Cretaceous	Albian		Patapsco Formation
			Arundel (?) Fm.
	Aptian		Patuxent Formation

The lowermost part of the stratigraphic section, the Potomac Group, consists of the Patuxent, Arundel, and Patapsco Formations at the type locality in Maryland. Palynological studies of samples from three sites from the Camden County area by Wolfe and Pakiser (1971) and L. A. Sirkin (written commun., 1971) indicate that only the Upper Patapsco was found at two of the three sites. Berry (1911), from a study of megafossil flora, determined that the sample from a site in the outcrop near Camden is Upper Raritan. However, Wolfe and Pakiser (1971) who examined a sample from the same site indicate an uppermost Patapsco age based on palynologic data. According to Sirkin (written commun., 1971) the uppermost Patapsco can be found at Medford test well (ME 1), but not at the New Brooklyn Park test well (WI 27).

The Raritan Formation at the type locality at Raritan Bay, Middlesex County, was divided into seven units by Ries, Kummel, and Knapp (1904) and later modified by Berry (1906). Barksdale and others (1943) assigned names to the three sand members. Recent palynological work by Wolfe and Pakiser (1971) and Doyle (1969) indicate that the upper two units, the Amboy stoneware clay and the Old Bridge Sand, are of Magothy age. Wolfe and Pakiser (1971) reassigned the Old Bridge Sand as the basal member of the Magothy Formation. However, the members of the Raritan Formation of the type area in Raritan Bay cannot be traced to the Delaware Valley as distinct lithologic units. Palynologic analysis of core samples from the New Brooklyn test well (WI 27) and the Medford test well (ME 1) indicate the Raritan Formation is present at the two sites (Sirkin, written commun., 1971).

The Magothy Formation in the Raritan Bay area has been re-examined by Owens, Minard, and Sohl (1968). Based on the then unpublished work of Wolfe and Pakiser (1971), Owens, Minard, and Sohl (1968) defined the Magothy as consisting of four units. The total thickness of the Magothy is more than 200 feet in the Raritan Bay area. Members of the Magothy Formation of the Raritan Bay area are not recognizable in the Delaware Valley. Palynological studies by Sirkin (written commun., 1971) indicate that there is about 300 feet of Magothy age sediments at New Brooklyn Park test well (WI 27) and about 100 feet at the Medford test well (ME 1).

Depositional Environment

The Potomac Group and the Raritan and Magothy Formations were deposited in a complex fluvial-deltaic environment (Owens and others, 1968). Figure 10 illustrates the idealized sand-dispersal system showing the various depositional environments for the Eocene deltas of Texas (Fisher and McGowen, 1969). The authors believed that the fluvial-deltaic sediments of the Potomac Group and the Raritan and Magothy Formations have a similar complex depositional history.

In the Camden area the sediments were deposited as part of the ancestral Schuylkill fluvial-deltaic system (Gill and Farlekas, written commun., 1969). Troughs in the bedrock surface represent erosional features that are of Late Cretaceous age or older. These troughs, filled mainly with coarse sands and gravels, have been delineated in Philadelphia by Greenman and others (1961). The sediments were deposited during Cretaceous time in the fluvial part of the system, which

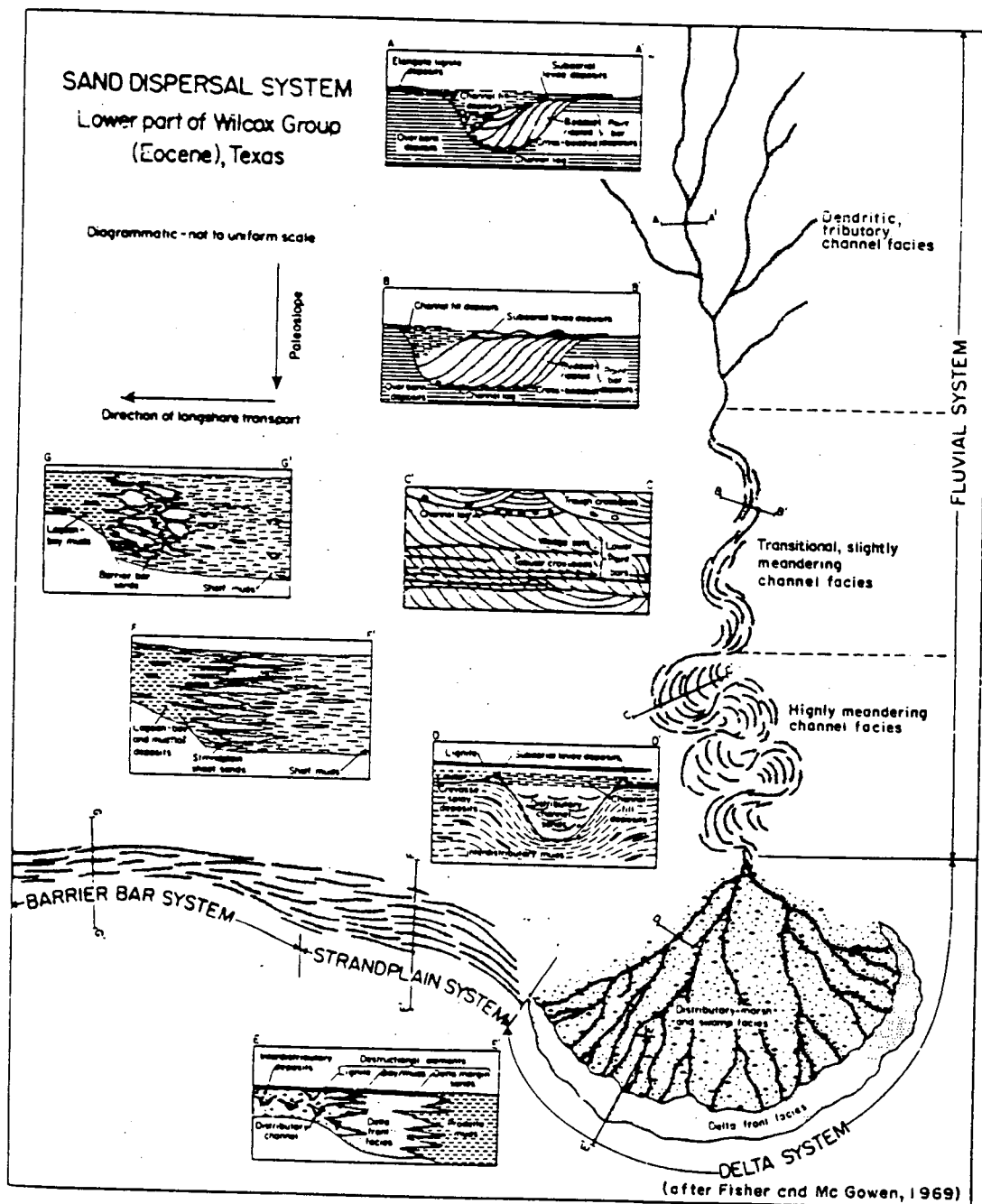


Figure 10. — Idealized sand-dispersal system in various depositional systems, Wilcox Group, Texas.

probably extended from Philadelphia to the area updip from New Brooklyn Park.

A thickness map of the Potomac Group and the Raritan and Magothy Formations is given in figure 9. Also shown is the percentage of sand as estimated from geophysical logs from wells that penetrate the section from the top of the Magothy to the crystalline rocks. The thickness lines show the thickening of the sediments downdip. The percentage of sand indicates greater values in the updip area and lower values in the downdip area. The estimated percentage of sand at the New Brooklyn Park well (WI 27) is 37. Based on the depositional concept developed by Fisher and McGowen (1969) the New Brooklyn Park well is interpreted as being in the distributary channel-marsh and swamp facies. The sediments found in the Haddonfield area are interpreted as including the transitional, slightly meandering channel facies of Fisher and McGowen (1969). The dendritic tributary channel facies is interpreted as occurring in the area from Philadelphia to the northern part of Camden County. The highly meandering channel facies probably occurs in the area downdip from Elm Tree Farms well (VO 12). Lack of data prevents the delineation of the extent of this facies downdip of the Elm Tree Farms area.

Particle-size analysis is available for samples from the New Brooklyn Park test well (WI 27) in Winslow Township (table 5). The particle-size analysis shows the predominant silt and clay values.

Hydrology

The most productive source of ground water in Camden County is the Potomac-Raritan-Magothy aquifer system. The aquifer system is made up of aquifers consisting of sand with some gravel and confining units consisting of silts and clays and is overlain in the outcrop area by highly permeable Pleistocene sand and gravel. The sands are separated into three hydrologic units, an upper, middle, and lower aquifer. The upper unit consists mainly of the sands of the Magothy Formation. The middle and lower units consist mainly of sands of the Raritan Formation and the Potomac Group. The thickness of the three hydrologic units are shown in figures 11, 12, and 13. The lower aquifer in the outcrop area is overlain by and hydraulically connected to the Pleistocene deposits and is a water-table aquifer in Philadelphia. The upper aquifer in the outcrop area is overlain by and hydraulically connected to the Pleistocene deposits in Camden County and is under water-table conditions.

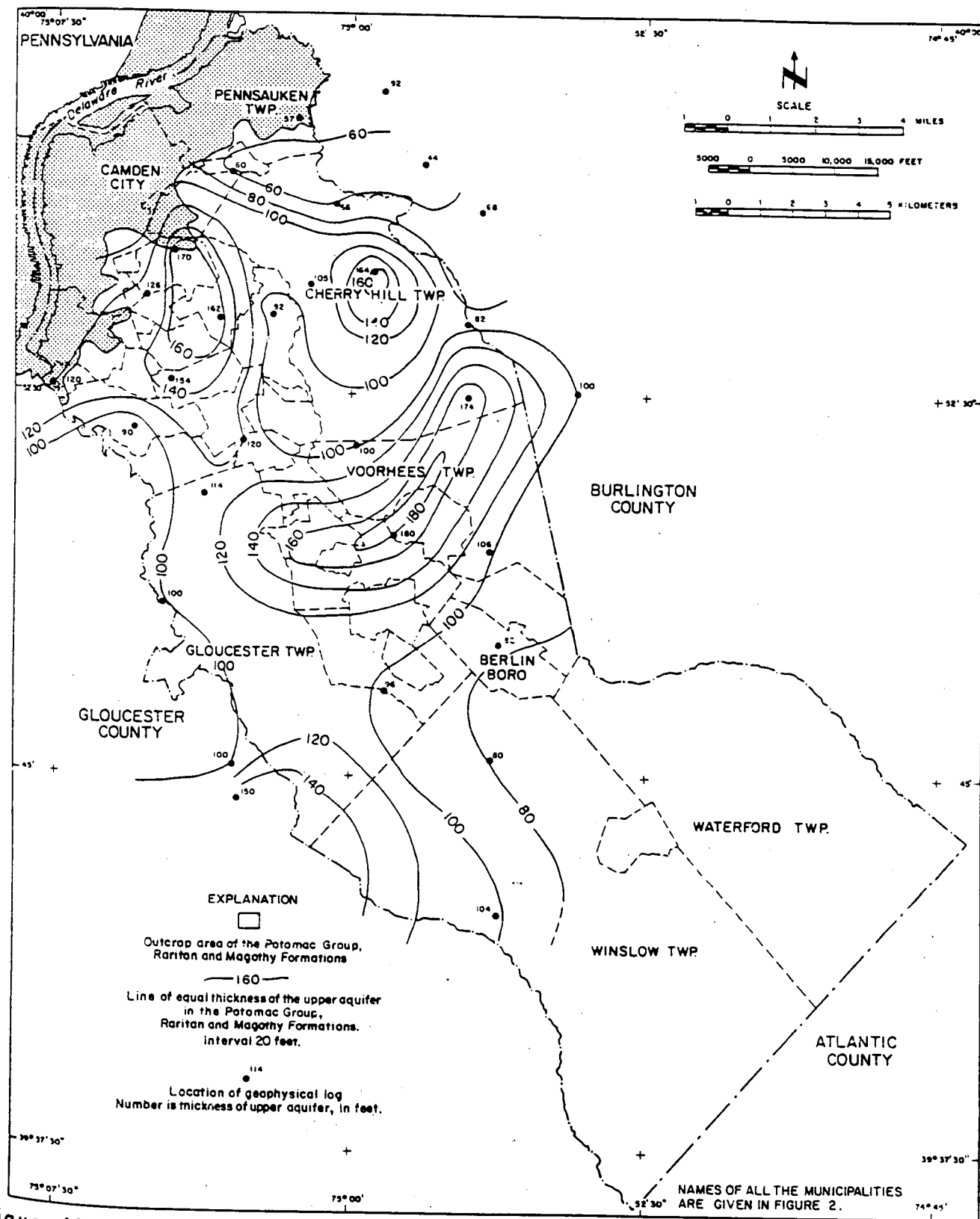


Figure 11. — Thickness map of the upper aquifer in the Potomac-Raritan-Magothy aquifer system in Camden County.

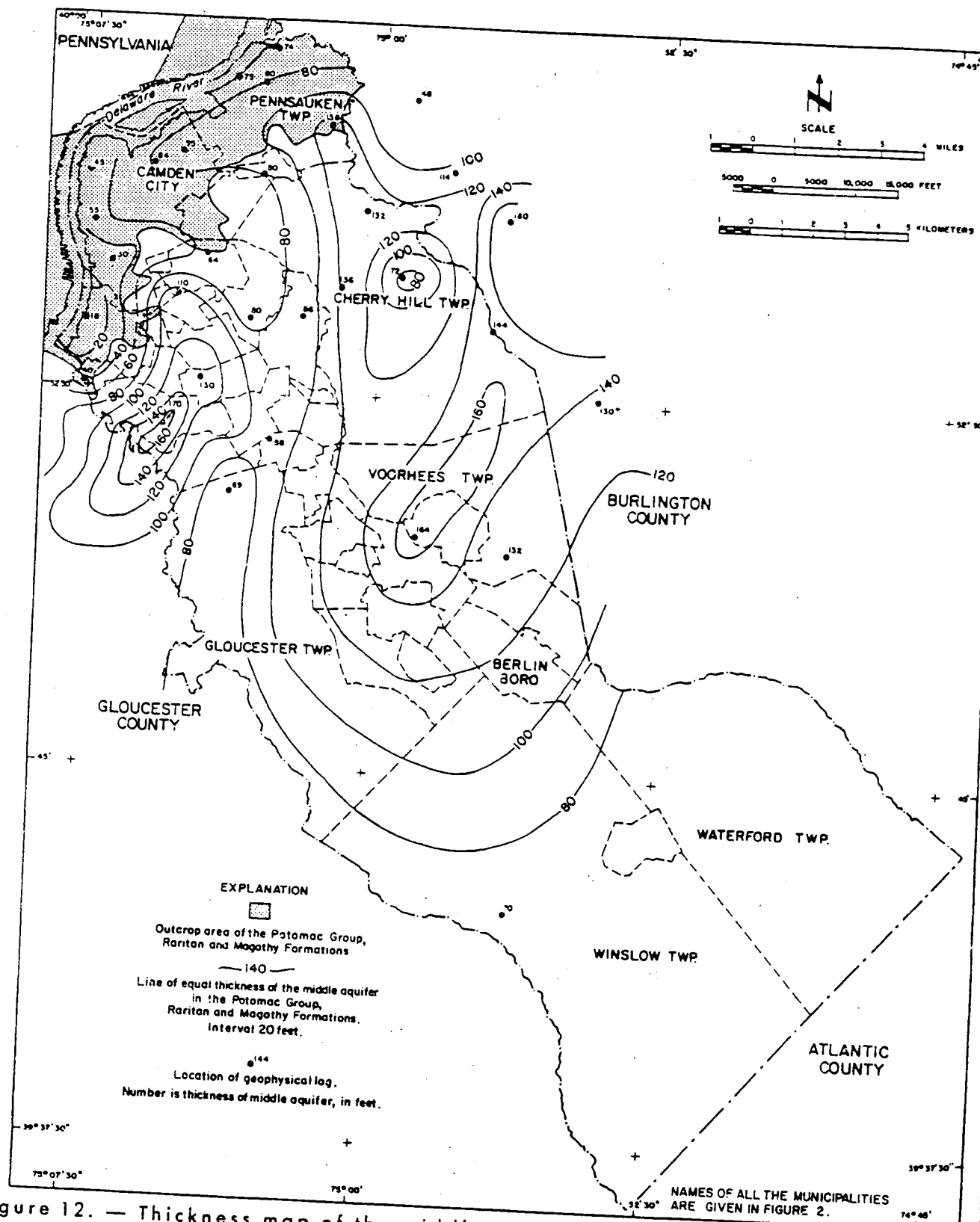


Figure 12. — Thickness map of the middle aquifer in the Potomac-Raritan-Magothy aquifer system in Camden County.

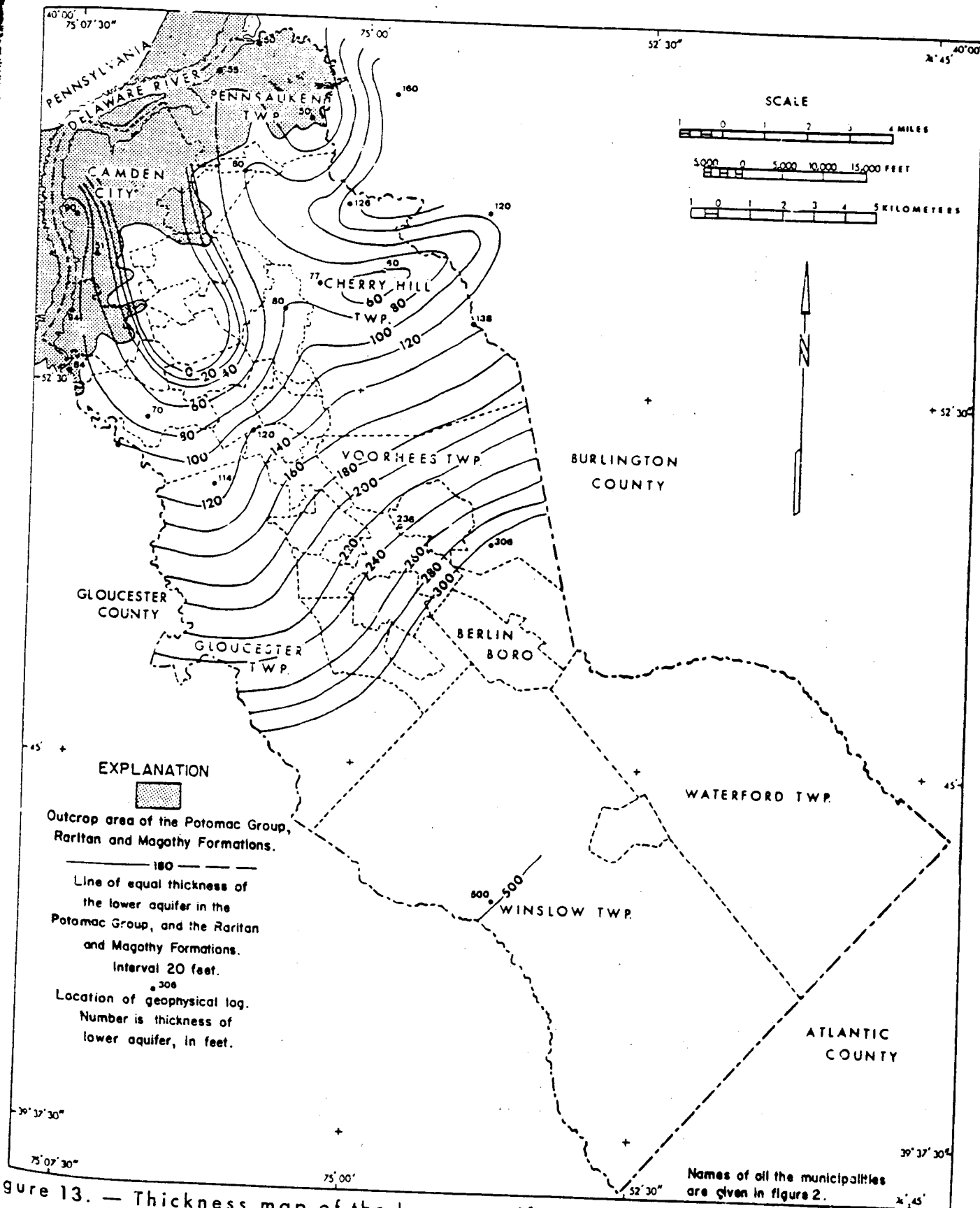


Figure 13. — Thickness map of the lower aquifer in the Potomac-Raritan-Magothy aquifer system in Camden County.

Patterns of Ground-water Movement

Pattern before development.--The natural ground-water flow regimen for the aquifer system prior to development was influenced by topography. The topographically high areas are the natural recharge zones for much of the ground-water system in the Coastal Plain. In areas of topographic highs the prepumping potentiometric surface of each aquifer was greater than that of the aquifer below. This indicates that vertical movement of ground water was downward through the semipervious confining units into the Potomac-Raritan-Magothy aquifer system. The discharge areas were the Delaware River, and to some extent, the topographic lows or stream valleys which cut across the outcrop areas.

The potentiometric map (fig. 14) represents the average natural conditions prior to 1900 for the Potomac-Raritan-Magothy aquifer system in Camden County. Most of the data for the map are from the annual reports of the State Geologist for the period 1888-1909. Water-level data for years after 1900 were used when there was reasonable certainty that the levels were indicative of natural or prepumpage conditions. In Camden County the topographically high recharge area occurs in northern Voorhees Township and southern Cherry Hill Township (fig. 14).

Pattern after development.--The first public-water supply obtained from the Potomac-Raritan-Magothy aquifer system and the hydraulically connected Pleistocene sediments in Camden County was from the Morris well field of the City of Camden in 1898. As the Camden City area's population and industry grew its need for ground water increased. Thompson (1932) describes in detail the ground-water development of the Camden area for 1898-1927. His data for Camden County were used to determine the annual pumpage from the Potomac-Raritan-Magothy aquifer system and the hydraulically connected Pleistocene sediments for 1917-27 shown in figure 15. Withdrawals by industrial wells were estimated by the present authors to be 4 mgd for 1917-27.

The early development of water in the Potomac-Raritan-Magothy aquifer system in Camden County was centered in the vicinity of Camden City, the area containing greatest concentration of population and industry. In later years suburban development had moved southeastward. During the 1950's and 1960's many new public-supply wells were drilled in

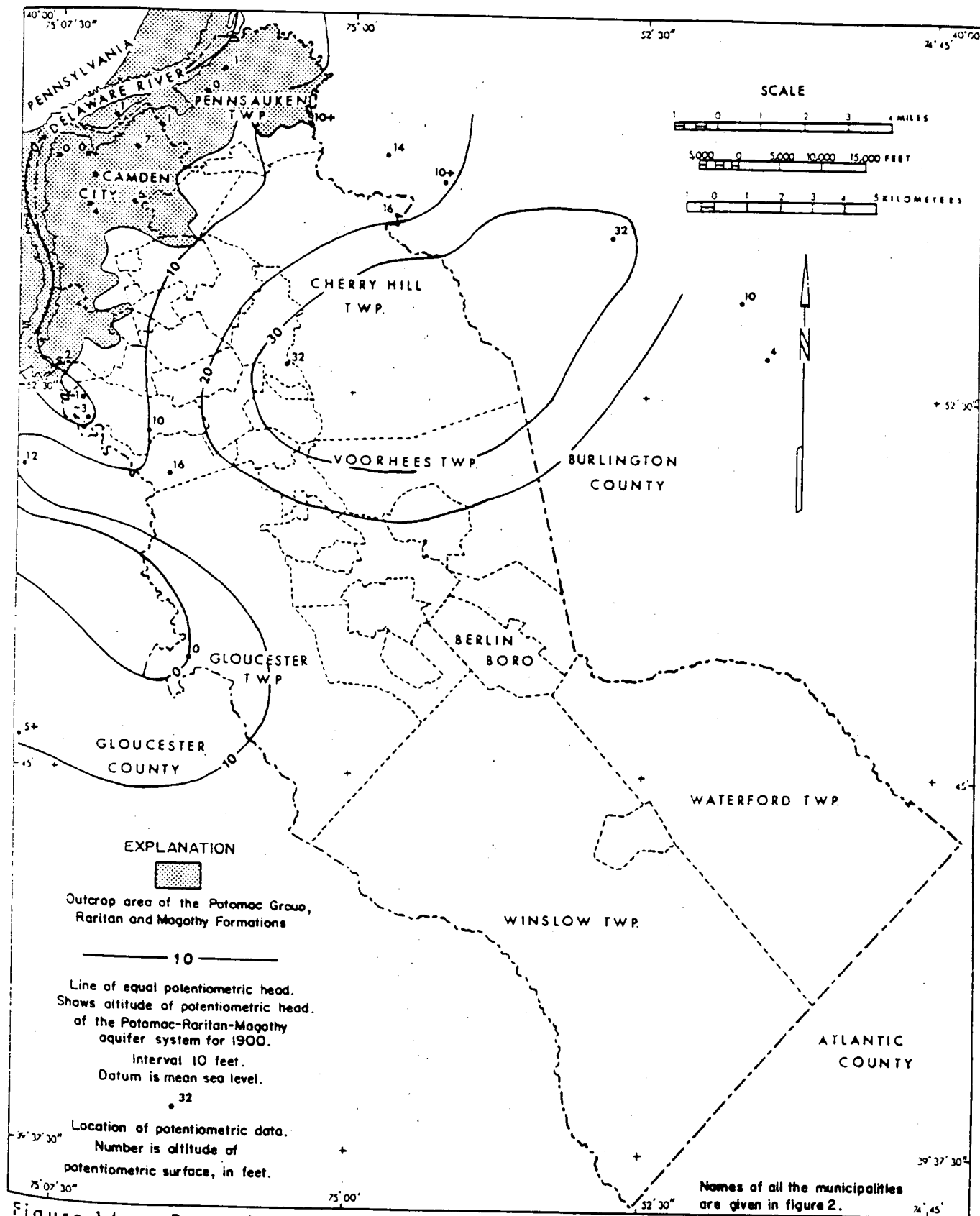


Figure 14. — Potentiometric map for the Potomac-Raritan-Magothy aquifer system in Camden County, 1900.

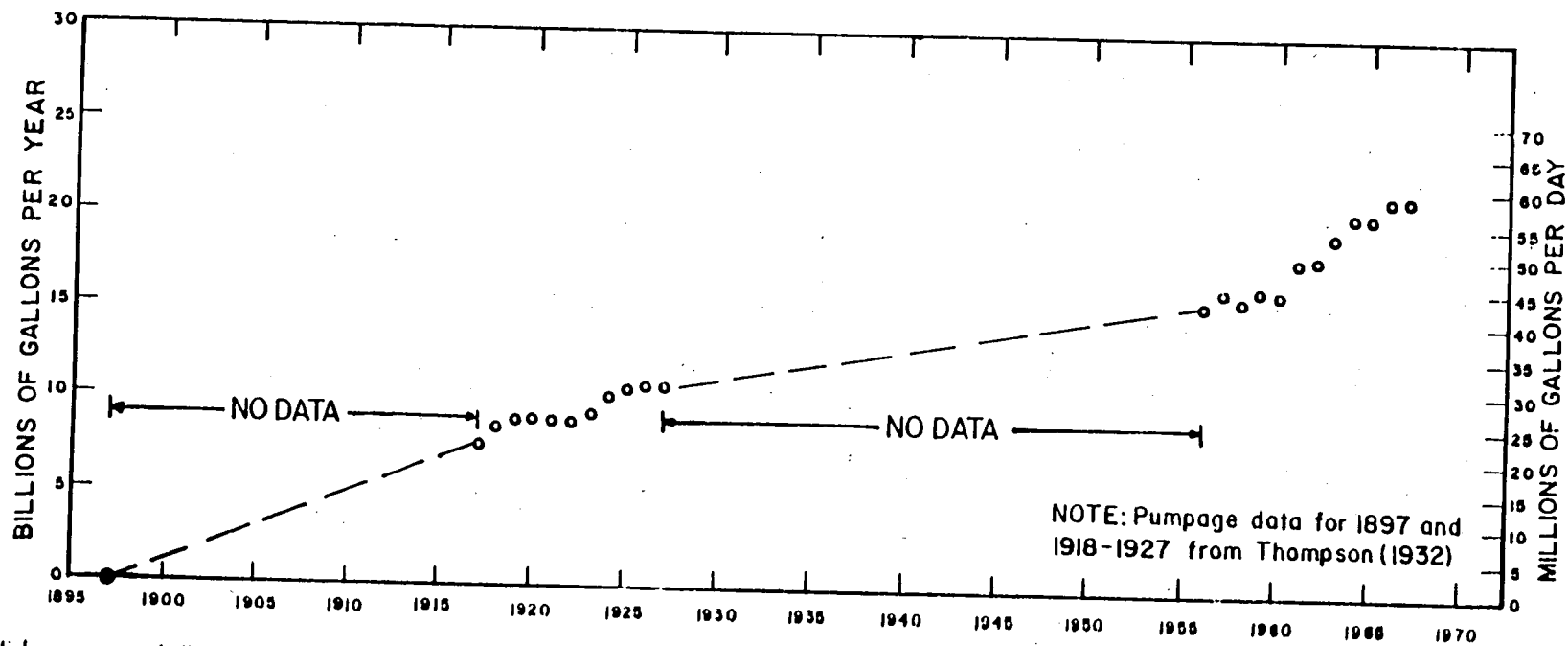


Figure 15. — Pumpage from the Potomac-Raritan-Magothy aquifer system in Camden County, 1897 - 1967.

areas where little or no water had been withdrawn from the Potomac-Raritan-Magothy aquifer system. Figure 16 shows the geographic distribution of the ground-water pumpage in 1966 for Camden County. Data used in figure 16 is tabulated in table 6. The effect of the increasing southeastward movement of demand on the aquifer system can be seen by comparing potentiometric surface maps. Figure 17 shows the 1956 potentiometric surface for the Potomac-Raritan-Magothy aquifer system. The map was developed from data from observation wells and reported data from newly drilled wells from mid-1955 to mid-1957. Figure 18 shows the potentiometric surface for 1968. This map was developed mainly from water-level measurements made over a three-day period from October 17 to October 19, 1968. A significant change in potentiometric surface occurred in the southeastern part of Camden County between 1956 and 1968. Prior to 1956 there was little ground-water diversion in the southeastern part of Camden County. New pumpage in this area after 1956, primarily from the upper and middle aquifer, is the probable cause for the change in potentiometric surface in the southeastern part of Camden County. Consequently, by 1968 a significant head difference existed between the upper and lower aquifer in southeastern Camden County and adjacent Gloucester County. The potentiometric heads for the upper and lower aquifers in the southeastern part of Camden County is shown in figure 18.

Three potentiometric decline maps were constructed from the potentiometric surface maps of the Potomac-Raritan-Magothy aquifer system. They are for 1) 1900 to 1956 (fig. 19), 2) 1956 to 1968 (fig. 20), and 3) 1900 to 1968 (fig. 21). Almost all of the decline from 1900 to 1956 occurred in the northern part of the county. The decline in the potentiometric surface during 1956 to 1968 (fig. 20) occurred throughout the county with the greatest declines in the Cherry Hill Township-Voorhees Township area and Berlin Borough area. From 1900 to 1968 the greatest potentiometric declines (more than 100 feet) occurred in the northcentral part of the county (fig. 21). Withdrawals from the Potomac-Raritan-Magothy aquifer system responsible for the decline in head are shown in figure 15. Pumpage was estimated for periods for which data were not available. Total pumpage from the Potomac-Raritan-Magothy aquifer system in Camden County from 1898 to 1968 based on figure 15 is 800 billion gallons. One-third of that pumpage was withdrawn in 13 years (1956 to 1968), which is 19 percent of the total period of pumpage.

Withdrawals in Philadelphia from the lower aquifer in the Potomac-Raritan-Magothy aquifer system has a direct effect on the potentiometric surface and ground-water flow in the Camden area. Greenman and others (1961) describe the history

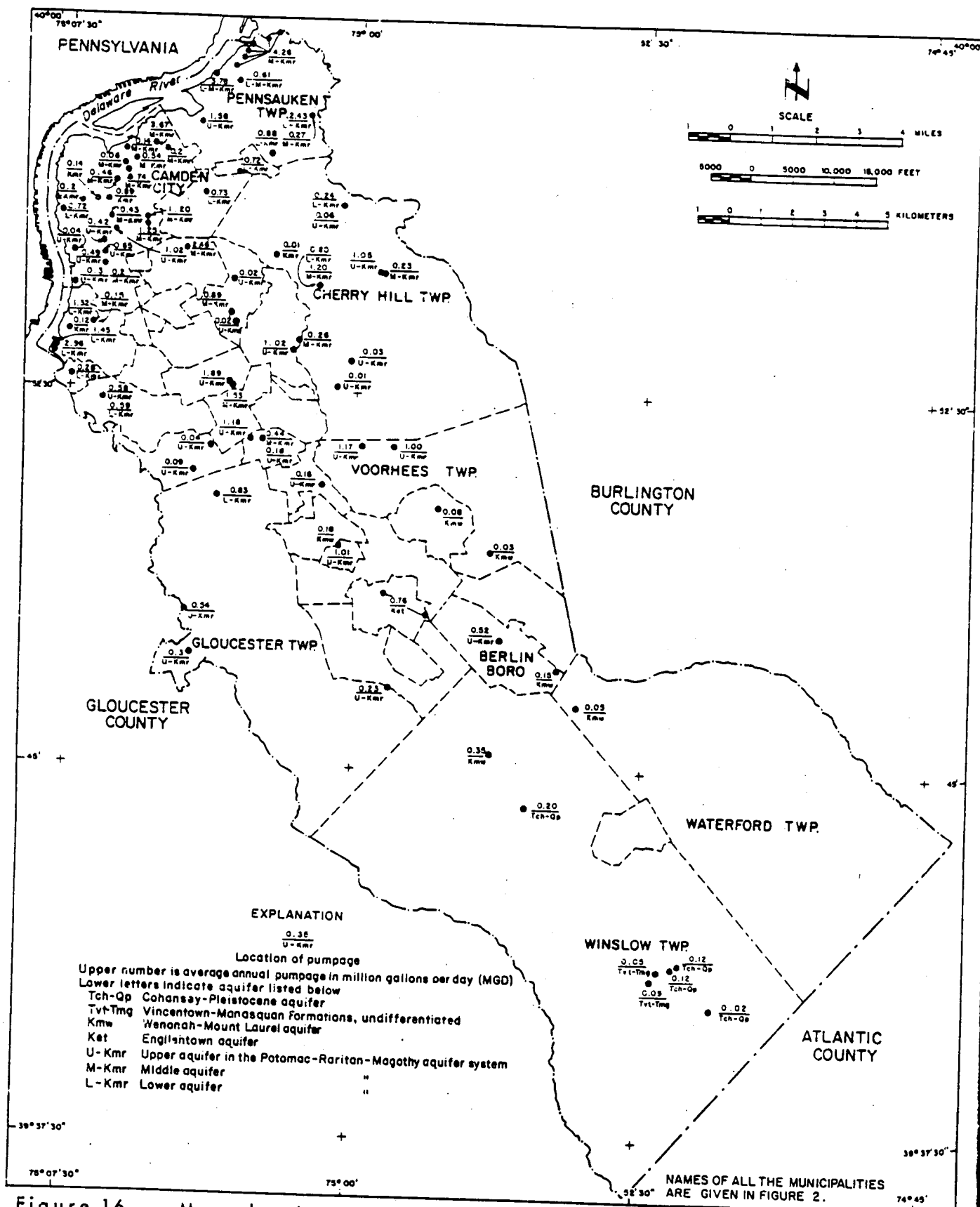


Figure 16. — Map showing the distribution of public and industrial pumpage in Camden County, 1966.

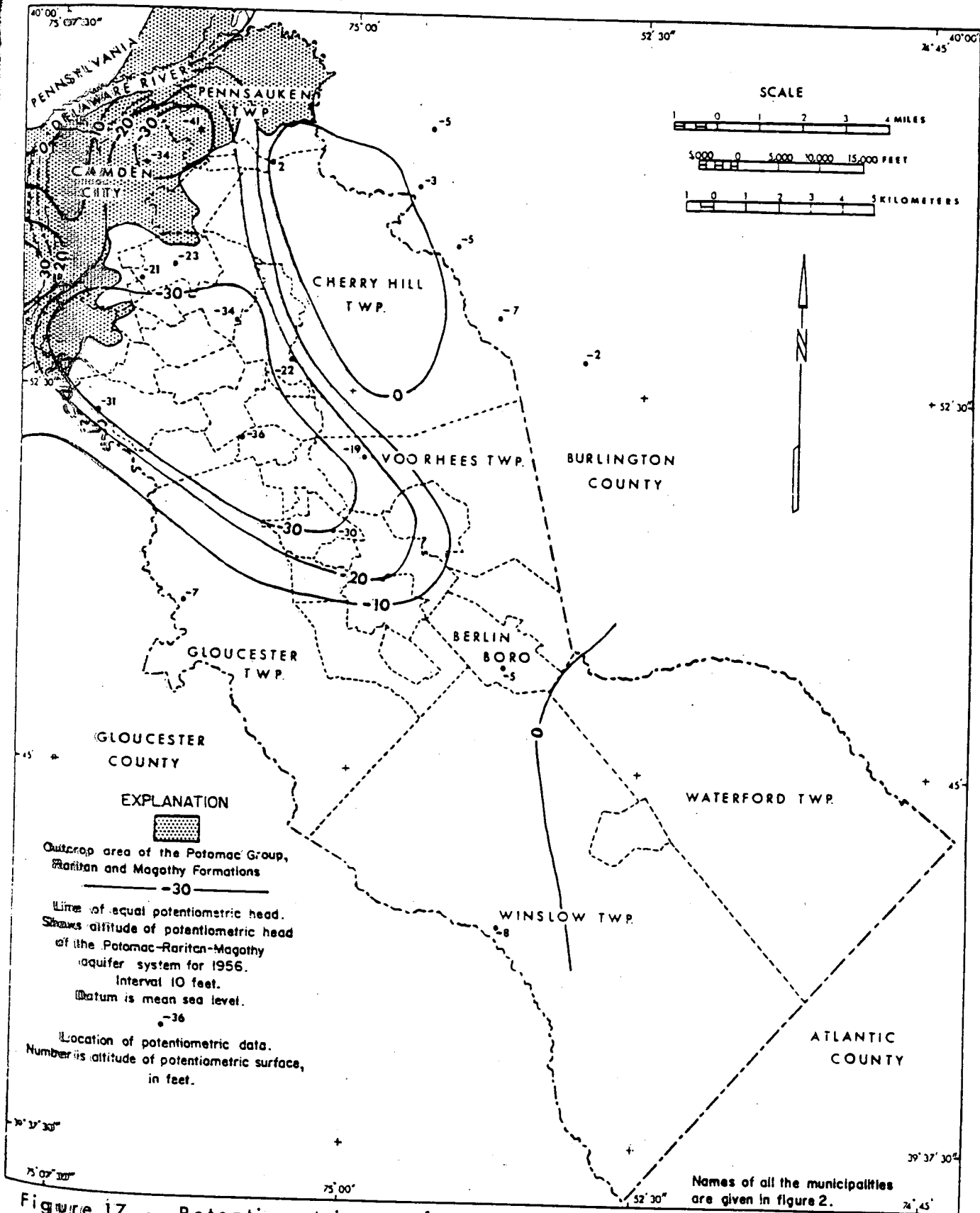


Figure 17. — Potentiometric map for the Potomac-Raritan-Magothy aquifer system in Camden County, 1956.

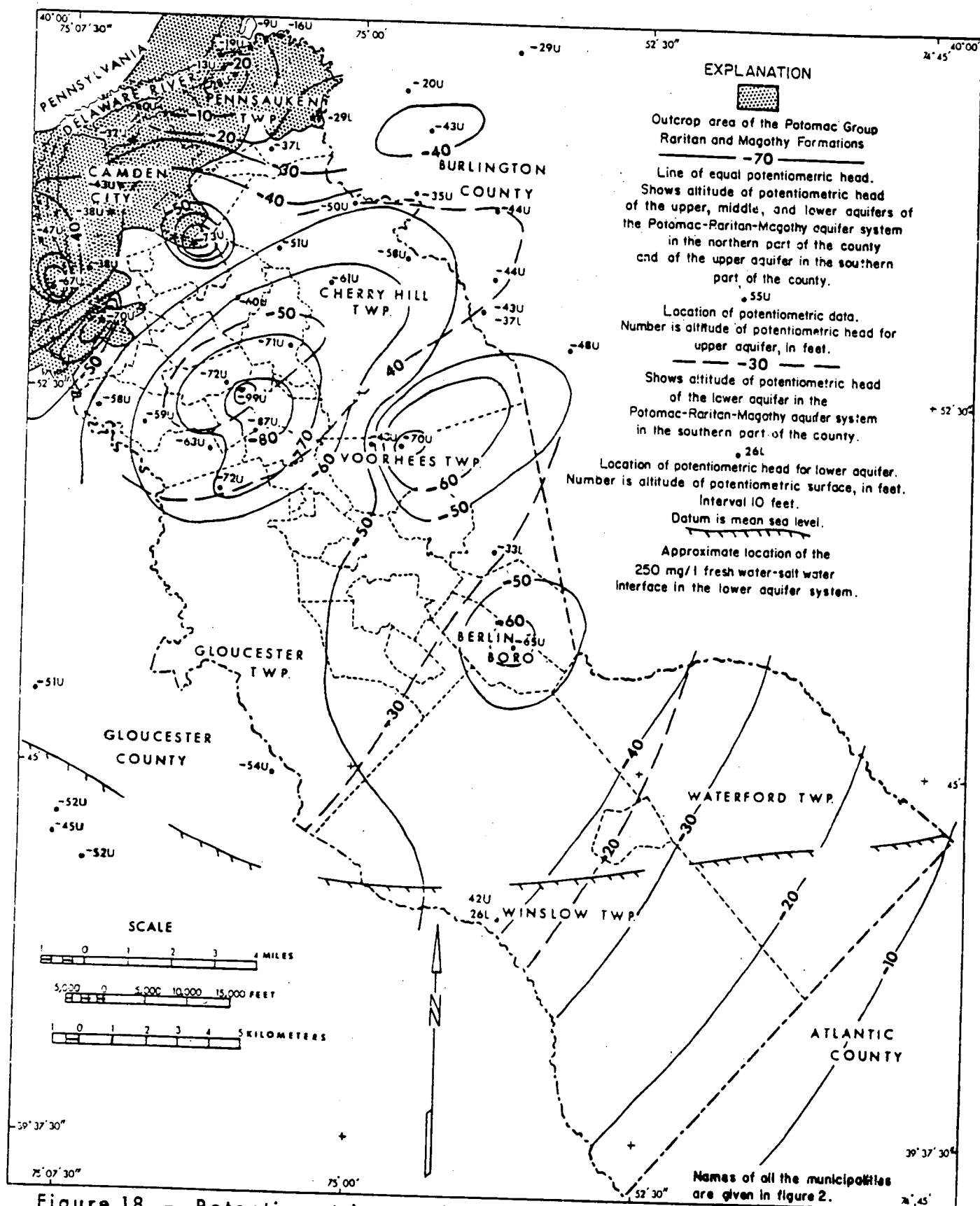


Figure 18. — Potentiometric map for the Potomac-Raritan-Magothy aquifer system in Camden County, October 17-19, 1968.

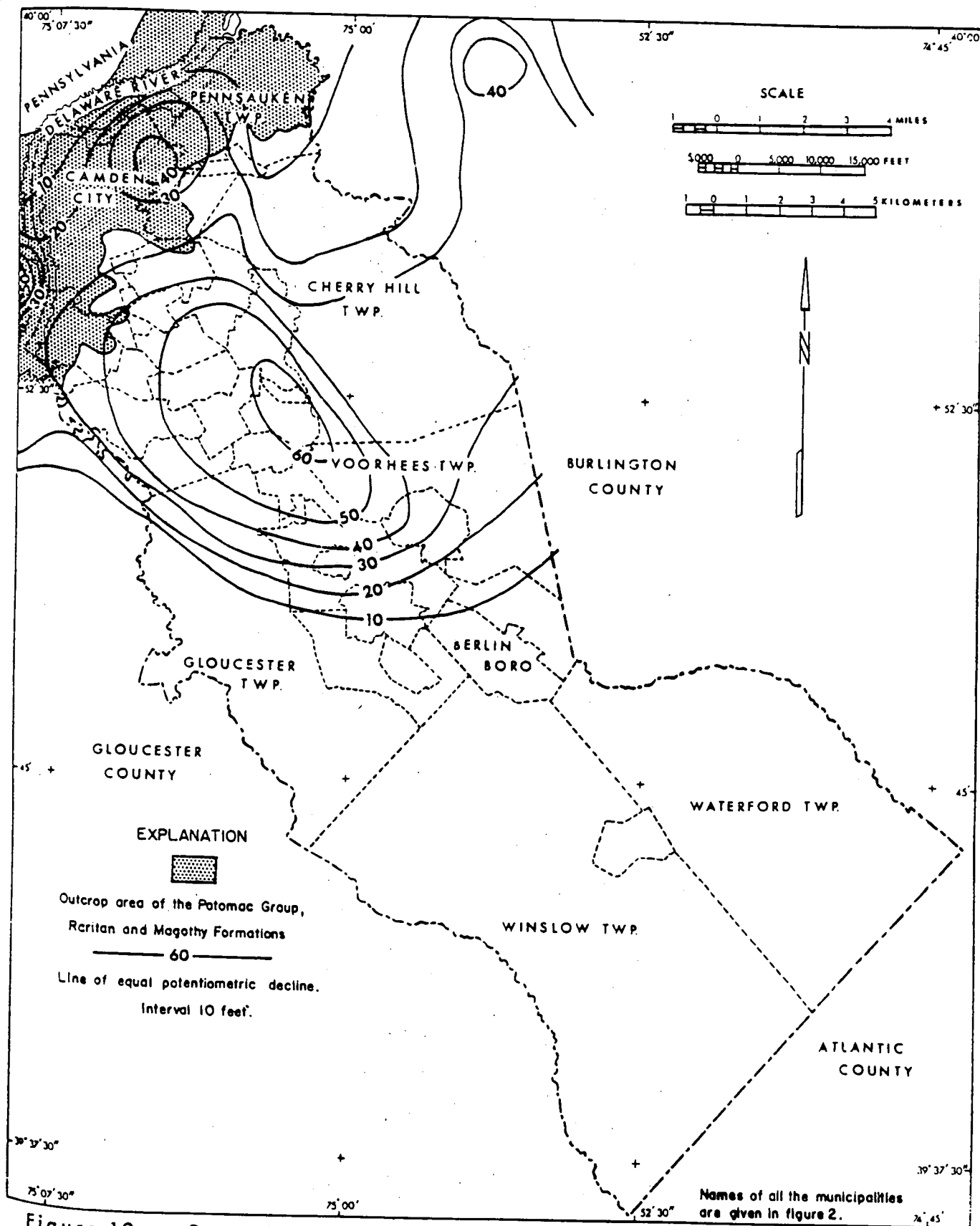


Figure 19. — Potentiometric decline map for the Potomac-Raritan-Magothy aquifer system in Camden County, 1900-56.

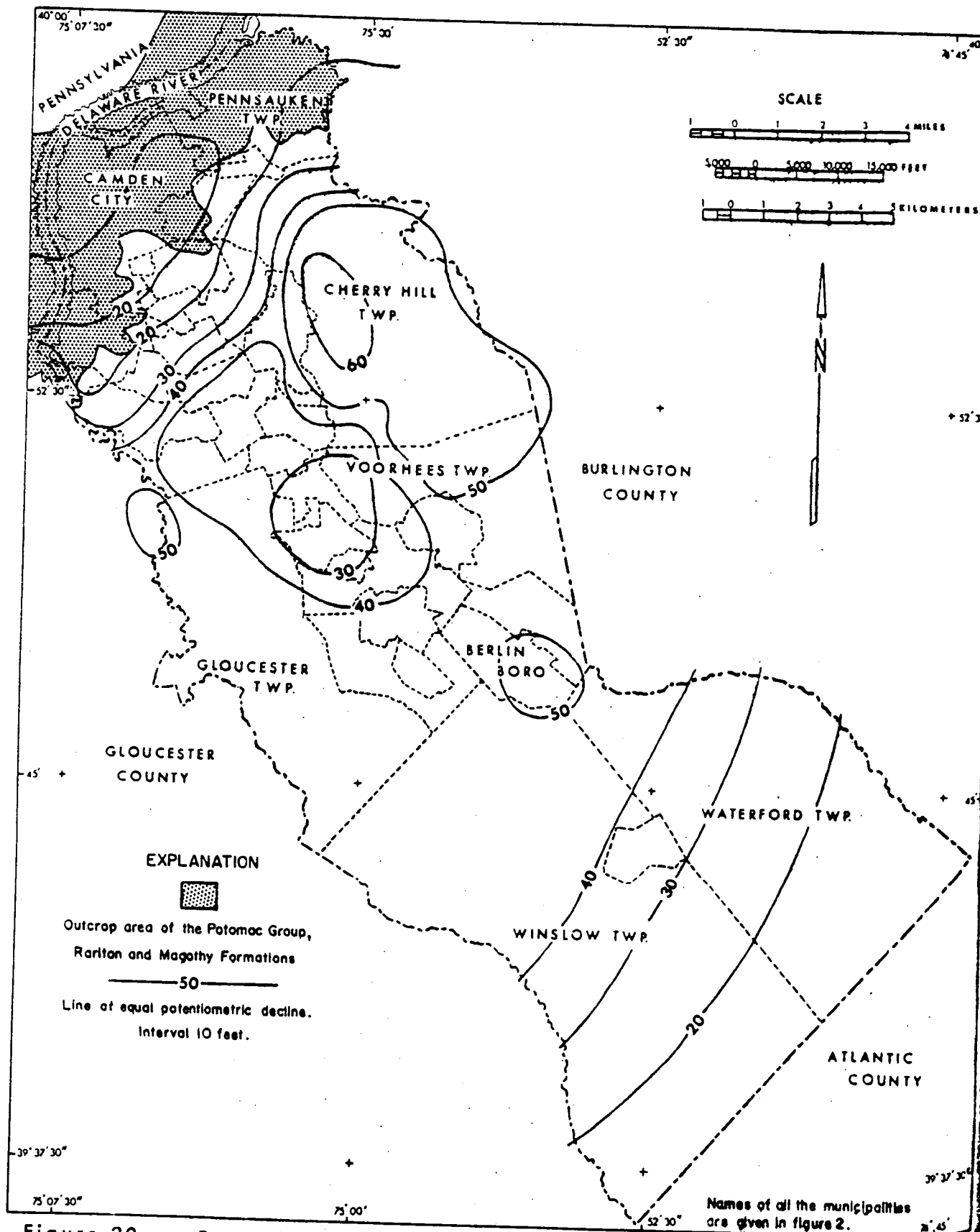


Figure 20. — Potentiometric decline map for the Potomac-Raritan-Magothy aquifer system in Camden County, 1956-68.

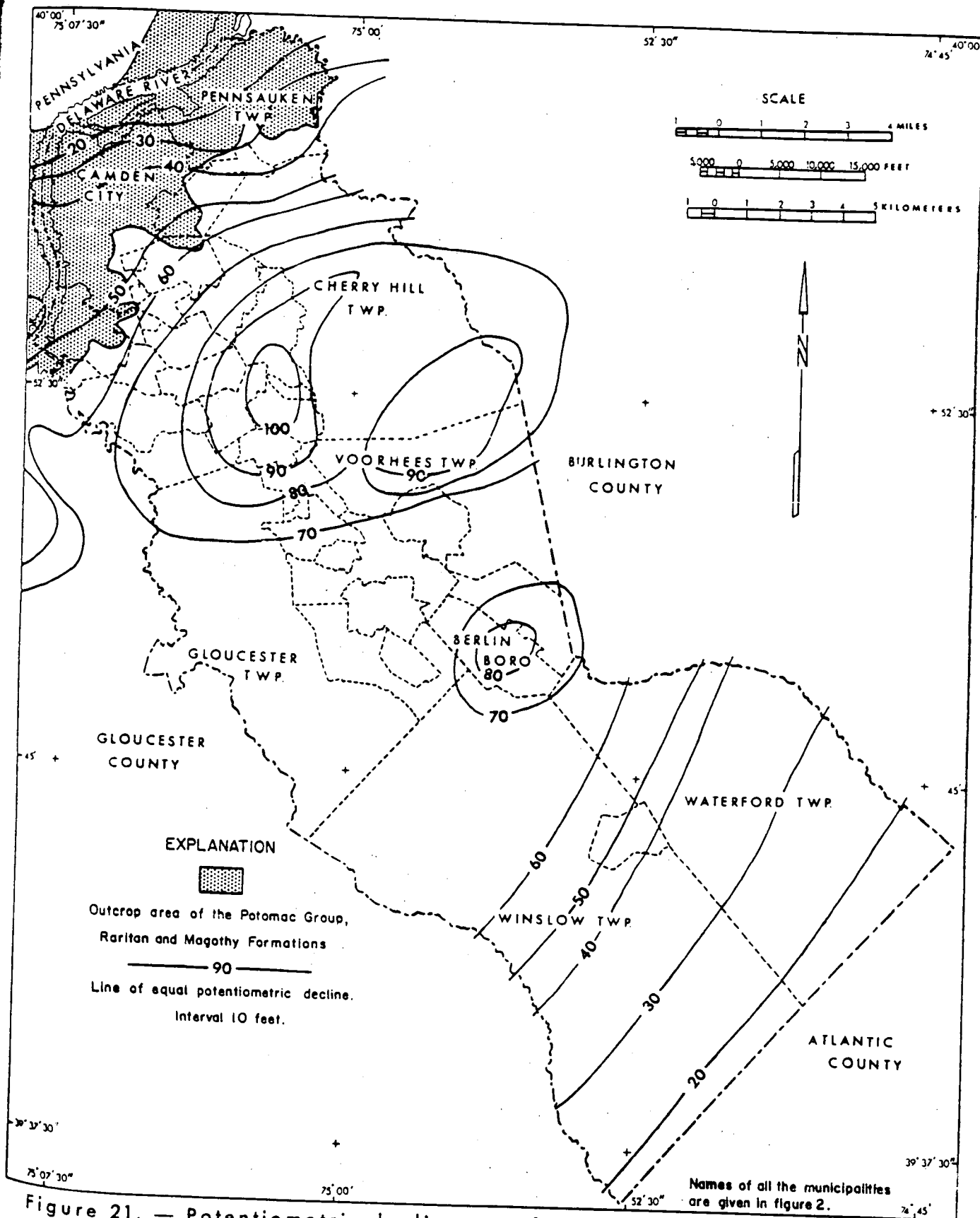


Figure 21. — Potentiometric decline map for the Potomac-Raritan-Magothy aquifer system in Camden County, 1900-68.

of development from the lower aquifer in Philadelphia and present maps of the potentiometric surface for the early 1920's, 1940, 1945, and 1954. The pumpage was approximately 5 mgd in 1920, 15 mgd in 1940, and 23 mgd in 1945. Withdrawals from the lower aquifer in Philadelphia decreased in 1946 and 1947, but again increased to 23 mgd in 1951. The rate of withdrawals declined after 1953 and pumpage in South Philadelphia in 1956 was 18 mgd. No recent complete inventory of withdrawal from the lower aquifer in Philadelphia has been made. However, spot inventories at the U. S. Navy Base and head measurements in 1968 in a few wells in Philadelphia indicate a much lower pumpage. Many wells pumped in 1956 were no longer in use in 1968.

Recharge and Movement of Ground Water

As presented in the section on patterns of ground-water movement the movement of water in the Potomac-Raritan-Magothy aquifer system prior to pumpage was influenced by recharge in topographically high areas while the discharge areas were the Delaware River, and to some extent, the topographic lows or stream valleys which cut across the outcrop areas.

→ Recharge and movement of water in the Potomac-Raritan-Magothy aquifer system was altered by the large amount of withdrawals, especially in the area near the Delaware River. As pumping increased the gradients were reversed in the water table and artesian aquifers near and under the Delaware River. Greenman and others (1961) suggest that induced recharge occurs from the Delaware River into the aquifers in Philadelphia. They compared the specific conductance of the water from a well located near the Delaware River and the specific conductance of the Delaware River. Fluctuations in specific conductance were similar except that there was a five-month time lag. Barksdale and others (1958) give substantial evidence to show that induced recharge from the Delaware River occurs in the heavily pumped parts of the aquifer near the river. They cite three types of evidence; aquifer test results, temperature fluctuations, and changes in chemical quality. An aquifer test at the Morro Phillips tract in Camden City near the Delaware River indicated a recharge boundary under the river and suggested that after two years of operation a well near the river would obtain 90 percent of its water from the river. Temperatures of water in a well near the river (at Beverly, Burlington County) change seasonally as does the temperature of water in the Delaware River. On the other hand the temperature of the water in a well several miles away from the river (at

Haddon Heights) remains essentially constant (Barksdale and others, 1958, p. 106-108). Changes in chemical quality of water from wells near the river were cited by Barksdale and others (1958) as evidence of induced recharge. Table 7 gives the chemical quality data of two wells, located in Pennsauken Township, used by Barksdale and others (1958, p. 121-123) and also includes more recent data. The water-quality analyses dated 1924 (table 7) were for samples collected just after completion of the wells. As pointed out by Barksdale and others (1958) the dissolved-solids content of the water from well 1 (PE 18), located near the river, more than doubled between 1924 and 1953 while the quality of water from well 4 (PE 21), located one mile from the river, remained the same. Much of the water obtained from well 1 is induced river water; whereas, well 4 receives a much greater part of its water from the aquifer and a lesser amount of water from the Delaware River. Data from samples taken after 1953 from well 1 indicate improved quality for a period of approximately 13 years. This was followed by a decline in quality as evidenced by increasing chlorides, sulfates, and specific conductance. Chlorides were 27 mg/l (milligrams per liter) in 1969, an increase from 8.0 mg/l in 1963. Changes in the quality of the river water probably caused the variation in quality of water in the wells.

Recharge of the aquifer system downdip from the outcrop area is mainly from vertical leakage through the overlying confining unit. In the area downdip of the outcrop there have been significant declines in the potentiometric surface--declines in excess of 100 feet at some locations. The difference in heads between those in the Potomac-Raritan-Magothy aquifer system and the overlying aquifers provides the driving mechanism for downward vertical leakage. The rate of vertical leakage is, with all other factors being equal, probably greater in the downdip area where large head differences occur. In the area near the outcrop the head difference is not as large, and thus the rate of vertical leakage is probably smaller. This area is also closer to the Delaware River, which is a recharge boundary. In addition to recharge of water through the confining units, significant amounts of water are released to the aquifer system from storage within the confining silts and clays in the Potomac Group and the Raritan and Magothy Formations and the overlying confining units.

An additional source of water lies outside of the political boundaries of Camden County. Water moves toward Camden from the adjacent areas outside the county line as the pumping cone of depression expands. Description of the regional pattern of ground-water flow for this aquifer system for the hydrologic unit in southern New Jersey has been studied

in detail by Gill and Farlekas (written commun., 1969).

The source of water in the Potomac-Raritan-Magothy aquifer system in Camden County is therefore 1) precipitation on the outcrop area and induced recharge from streams located in the outcrop area, for example, the Delaware River, 2) recharge through the confining units, 3) water released from storage from the silts and clays of the Potomac Group and Raritan and Magothy Formations and overlying units, and 4) water from the adjacent areas as the cone of depression expands.

Aquifer Characteristics

A number of aquifer tests in the Camden County area for wells tapping the Potomac-Raritan-Magothy aquifer system have been evaluated in the past using the Theis nonequilibrium method (Ferris and others, 1962, p. 92), which assumes that the confining layers are impermeable. Results were reported in Barksdale and others (1958, p. 96-98) and Rush (1968, p. 32-33). Four of these aquifer tests have been re-evaluated (Harold Meisler, written commun., 1973) to include leaky artesian aquifer conditions proposed by Hantush (1960). Two of the four re-evaluated aquifer tests are for wells located in Camden County near the Delaware River and tap the middle aquifer of the Potomac-Raritan-Magothy aquifer system. The results of the test at the site of the Camden Water Department well 14 (CA 18) indicate that the transmissivity ranges from 2,300 to 6,700 ft²/day (17,000-50,000 gpd/ft) with an average of 4,300 ft²/day (32,000 gpd/ft²). The storage coefficient ranges from 1.0×10^{-4} to 3.5×10^{-4} with an average of 1.8×10^{-4} . The re-evaluated results of the aquifer test at the Stockton pumping station (Camden Division) of the New Jersey Water Company indicate that the transmissivity ranges from 3,200 to 3,700 ft²/day (24,000-28,000 gpd/ft) and the storage coefficient ranges from 3.3×10^{-5} to 1.5×10^{-3} .

Many large diameter high-yielding wells tap the Potomac-Raritan-Magothy aquifer system. The yields of 106 wells in Camden County (diameter 12 inches or greater) range from 455 to 1,900 gpm (gallons per minute) (table 1). The average yield for 106 wells is 1,085 gpm. The specific capacities of these wells are high, indicating a high aquifer transmissivity. The range of specific capacity of 96 wells (diameter 12 inches or greater) tapping the Potomac-Raritan-Magothy aquifer system in Camden County is 6.1 to 80 gpm/ft (gallons per minute per foot of drawdown) (table 1). The average specific capacity of these wells is 29.3

gpm/ft. Two-thirds of the specific capacities range between 15 to 35 gpm/ft. Figure 22A shows the distribution of the specific capacities of the 96 large diameter wells.

Another method for determining the hydraulic properties of aquifers is the specific capacity of a well divided by the length of well screen. The specific capacity of the well per foot of well screen may be more meaningful than specific capacity where the length of well screens differ considerably. The distribution of values of specific capacity per foot of well screen for 95 wells (diameter 12 inches or greater) tapping the Potomac-Raritan-Magothy aquifer system in Camden County is shown in figure 22B. These values range from 0.12 to 2.29 gpm per foot of screen. About 56 percent of the values range between 0.6 and 1.0 gpm per foot of screen. The average specific capacity per foot of well screen is 0.83 gpm per foot of screen. Values of specific capacity per foot of well screen for wells tapping the Potomac-Raritan-Magothy aquifer system located in the outcrop area are generally higher than those located downdip from the outcrop. The average specific capacity per foot of well screen for 60 wells located in the outcrop area is 0.95 gpm per foot of screen and the range is from 0.35 to 2.29 gpm per foot of screen. The average specific capacity per foot of well screen for 35 wells located downdip from the outcrop is 0.52 gpm per foot of screen and the range is from 0.22 to 1.7 gpm per foot of screen. The higher values for wells located in the outcrop area are attributed to better hydraulic properties of the aquifer and proximity to source of recharge, primarily from the Delaware River. This is in agreement with the evidence cited by Barksdale and others (1958) and Greenman and others (1961) indicating recharge from the Delaware River.

Quality of Water

Detailed analysis of water-quality data for the Potomac-Raritan-Magothy aquifer system has been presented in recent publications by Langmuir (1969a and 1969b) and Gill and Farlekas (written commun., 1969). Camden County was one of the counties included in these recent studies. Some of the data used in the recent studies are given in table 4.

Water from the Potomac-Raritan-Magothy aquifer system in a large part of Camden County, with the exception of iron content, meets the State's standards for potable water (New Jersey State Department of Environmental Protection, 1970) with little or no treatment and is suitable for most industrial and agricultural needs. Recent analyses of water from two wells in Camden City suggest that chromium values are equal to or above

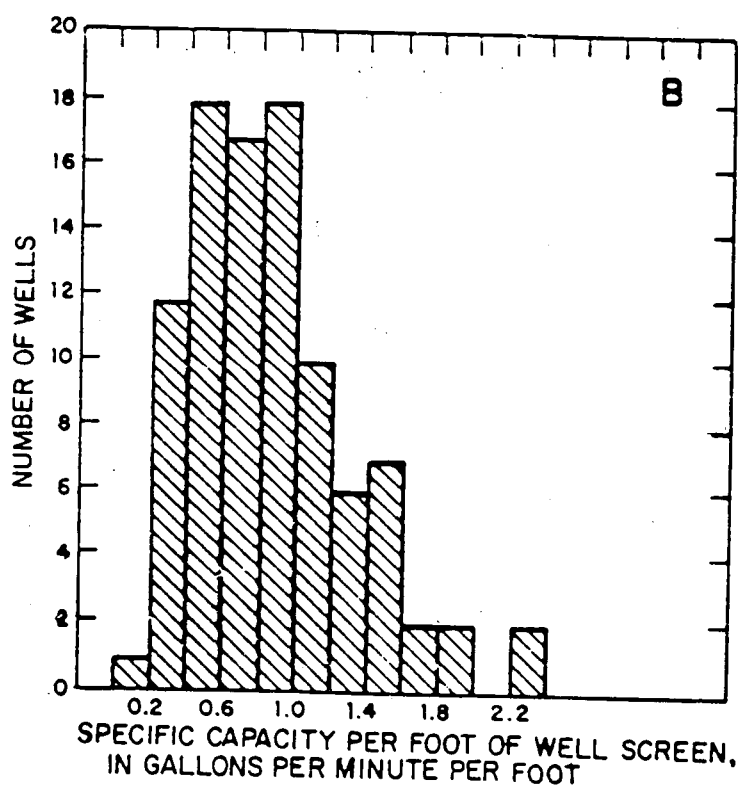
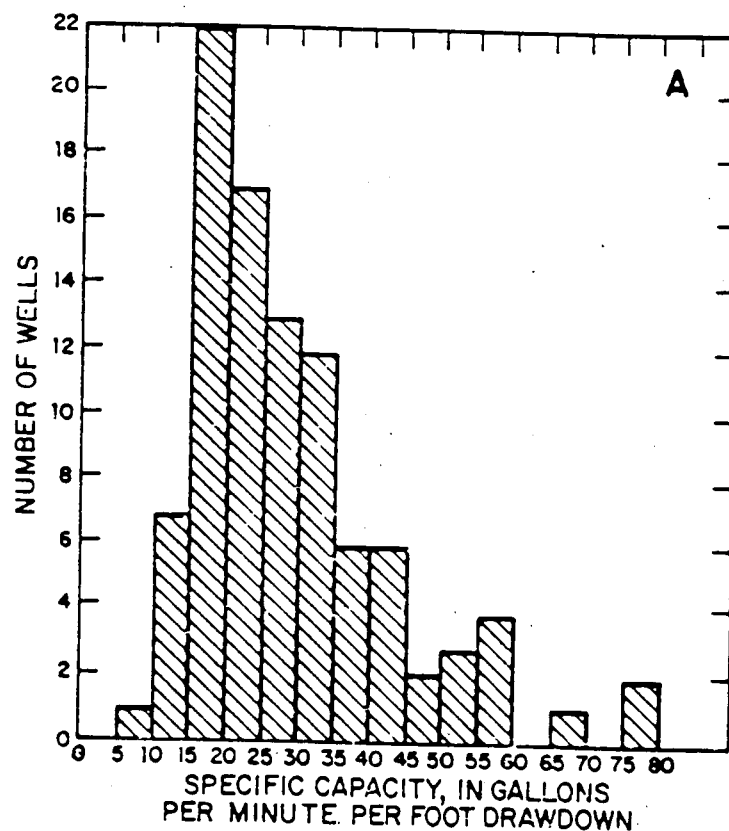


Figure 22. — Distribution of specific capacities of large diameter wells (12 inches or greater) tapping the Potomac-Raritan-Magothy aquifer system in Camden County.

the State's standards. This and additional water-quality problems are described below.

A summary of chemical analyses of water from wells tapping the Potomac-Raritan-Magothy aquifer system in Camden County is shown in table 8. This table gives maximum, average, and minimum parameters for samples from wells located in the outcrop area of the Potomac-Raritan-Magothy aquifer system and from samples from wells located downdip from the same outcrop area. Only the most recent analyses (table 4) were used to determine values shown in table 8.

The quality of water from wells located in the outcrop area of the Potomac-Raritan-Magothy aquifer system in Camden County varies from well to well. The variation is partly dependent on the depth of the well, the nature of the overlying sediments, and on the distance from the Delaware River. Chemical analyses (table 8) indicate that dissolved solids range from 39-445 mg/l; sulfates, 0.8-178 mg/l; and chlorides, 5.5-59 mg/l for samples from wells located in the outcrop area. Hardness ranges from soft to very hard (14-274 mg/l).

The quality of water of the Potomac-Raritan-Magothy aquifer system is, with the exception of iron content, within the State's standards for potable water in the area from the southeast limit of the outcrop area downdip to the vicinity of the New Brooklyn Park observation wells in Winslow Township. Water obtained from wells tapping the aquifer in the area that is overlain by the Merchantville-Woodbury confining unit, excluding the New Brooklyn Park area, is low in dissolved solids (48-150 mg/l), sulfates (2.6-34 mg/l), and chlorides (1.4-18 mg/l). Hardness ranges from soft to moderately hard (14-114 mg/l).

Samples collected in 1961 from the New Brooklyn Park well (WI 27) tapping the upper aquifer indicate chloride concentrations of approximately 4.0 mg/l; whereas, water from well (WI 28) tapping the lower aquifer in 1960 had a chloride concentration of approximately 300 mg/l (Donsky, 1963). Analyses of samples collected in 1972 for these two wells have similar values (table 4). The difference in chloride data from the New Brooklyn Park wells and other wells tapping the Potomac-Raritan-Magothy aquifer system in Ocean and Gloucester Counties (Gill and Farlekas, written commun., 1969) suggests lateral as well as vertical differences in chloride content in the aquifer system. This difference in chloride content as well as other water-quality parameters suggest that an interface exists between the salt water to the southeast and fresh water to the northwest and is represented by a broad zone of diffusion in the aquifer system. The 250 mg/l chloride line

for the upper aquifer is located several miles southeastward of the 250 mg/l chloride line for the lower aquifer (fig. 19). The 250 mg/l chloride line may be considered the limit of sea-water encroachment, inasmuch as the interface of salt and fresh water probably is not far seaward from this line (Parker, 1964). The high-chloride water in the southeastern part of the Potomac-Raritan-Magothy aquifer system is probably due to brackish-marine water entering the aquifer system during deposition of the sediments or the re-entering of ocean water after changes in sea level.

Water-quality analyses for wells tapping the Potomac-Raritan-Magothy aquifer system in Camden County indicate change in quality of water in the aquifers with time. In some cases the analyses show decreases in chloride and nitrate concentrations over a period of time; whereas, in other cases analyses show increases in chloride, sulfate, and dissolved solids. A summary of chemical analyses for selected wells tapping the Potomac-Raritan-Magothy aquifer system in Camden City for 1923-70 is shown in table 9. Data used in table 9 is from Thompson (1932), Donsky (1963), and table 4.

Chlorides, as reported (Thompson, 1932) for wells at two different sites tapping the upper aquifer in Camden City, were higher than those reported for the same or comparable well samples in 1966-67. The chloride content at one of the sites (Camden City Water Department wells 3-3A) decreased from 51 mg/l in 1928 (Thompson, 1932) to 28 mg/l in 1949 (Donsky, 1963). The chloride content for the same site was 41 mg/l in 1969 (table 4). At the second site (Camden City Water Department wells 6-6N) the chloride content decreased from 72 mg/l in 1932 (Donsky, 1963) to 32 mg/l in 1969 (table 4).

Wells tapping the middle or lower aquifer near the Delaware River generally have shown a deterioration in water quality over a period of time, as indicated by an increase in chloride and sulfate concentrations. Camden City Water Department wells at four sites (1A, 5-5N, 7, and 11) indicate a rise in chloride concentration over a period of years (table 4). There is also a corresponding rise in sulfate concentration in Camden City Water Department wells 1, 3, 4, 5, 6, and 10 (table 4). Water-quality analyses from Camden City wells 13 and 17, which tap the middle or lower aquifer, indicate that there has not been a change in quality at the two sites during the period samples. These two wells are located farther east than the other Camden City wells cited above, suggesting no change in water quality of the middle and lower aquifer in this area.

It can be assumed that water from wells in the Camden City area prior to 1920 probably was of slightly better quality than that reported by Thompson (1932). The change in the quality of water in the shallow and deeper aquifer between 1900 and 1967 as noted above may have been due to contamination from disposal ponds, waste-injection wells, and improperly sealed abandoned wells. The contamination may be similar to that documented by Greenman and others (1961) in adjacent areas of Philadelphia, but on a smaller scale.

Iron in the water of the Potomac-Raritan-Magothy aquifer system is the most troublesome water-quality parameter for many users. New Jersey's Potable Water Standards (1970) recommends a maximum iron concentration of less than 0.3 mg/l for potable supplies; however, most of the water analyses for the aquifer system indicate concentrations greater than 0.3 mg/l. Thus, treatment for iron removal is required for most users. The iron is present in the water as dissolved Fe^{+2} and FeOH^{+1} , and as suspended ferric oxyhydroxides, probably caused by the oxidation of ferrous species already in solution (Langmuir, 1969b). Langmuir (1969b) suggests that the oxyhydroxides are mixtures of goethite and amorphous materials with small amounts of hematite.

Samples from wells in the Camden County area were collected and analyzed separately for total iron and ferrous iron, with the difference assumed to be the concentration of particulate ferric hydroxide (Langmuir, 1969a, p. 19). Total iron, therefore, represents the sum of dissolved ferrous iron and colloidal ferric hydroxide. The distribution of total iron and ferrous iron concentrations in water of the Potomac-Raritan-Magothy aquifer system in the vicinity of Camden County as determined by Langmuir (1969b) is shown in figures 23 and 24. In the outcrop area dissolved ferrous or suspended ferric species are generally less than 0.5 mg/l in unpolluted waters. High concentrations in the outcrop area are interpreted by Langmuir (1969b) as the result of local ground-water contamination.

Immediately downdip of the outcrop area the ferrous and ferric iron species increase abruptly to about 7.0 mg/l. The high build-up of ferrous iron species in this area is due to the reaction with the ferrous iron minerals, such as pyrite and siderite, in the Merchantville-Woodbury confining bed. Langmuir (1969b) concluded that the parallel increase in ferric species to 6.0-11 mg/l may be caused by partial oxidation of Fe^{+2} and FeOH^{+1} . Total iron concentrations in the water of the Potomac-Raritan-Magothy aquifer system are highest in areas adjacent to the outcrop area. Seaber (1965) in his geochemical analysis of the Englishtown Formation also noted that the

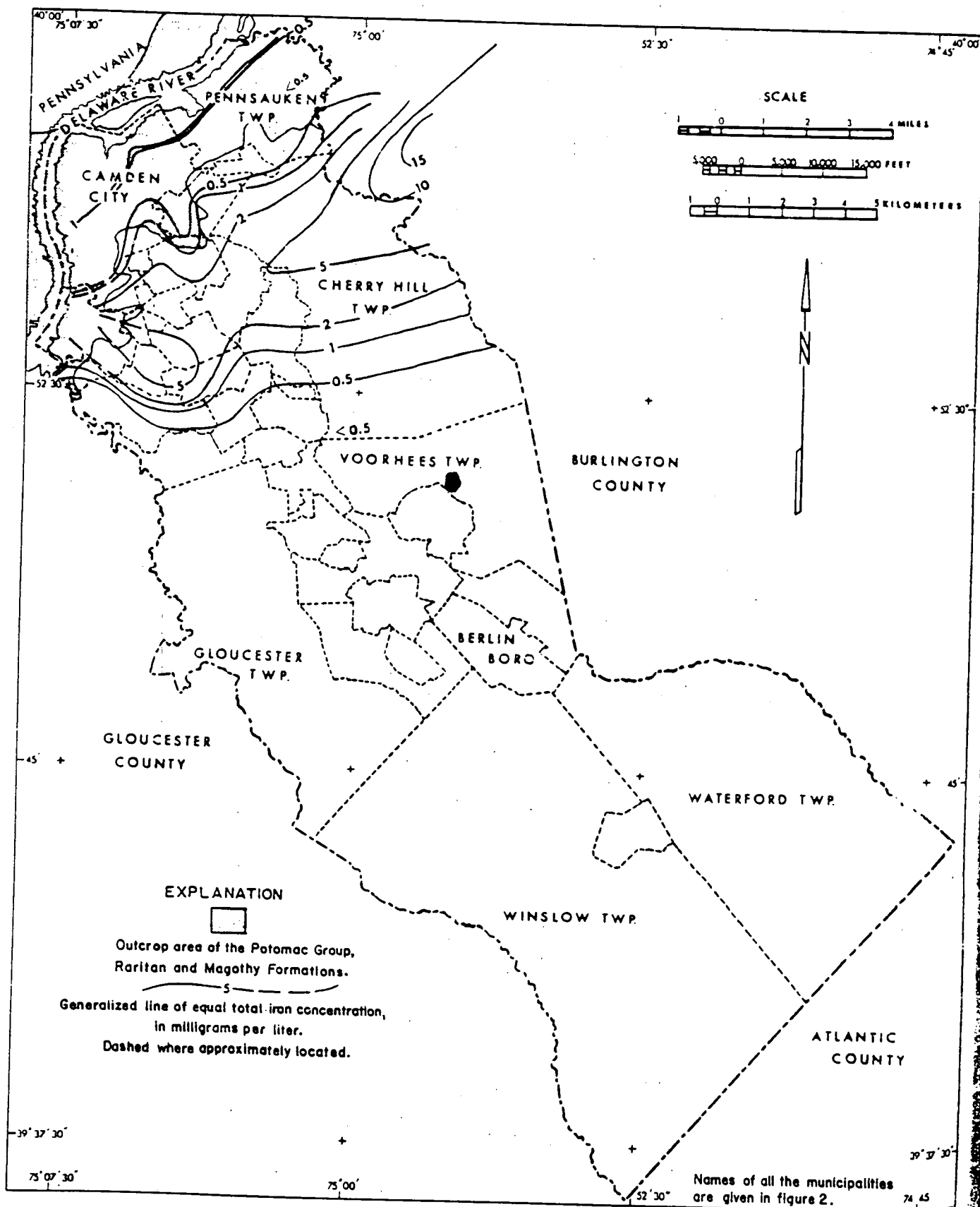


Figure 23. — Map showing generalized total iron concentrations in water of the Potomac-Raritan-Magothy aquifer system in Camden County, 1965.

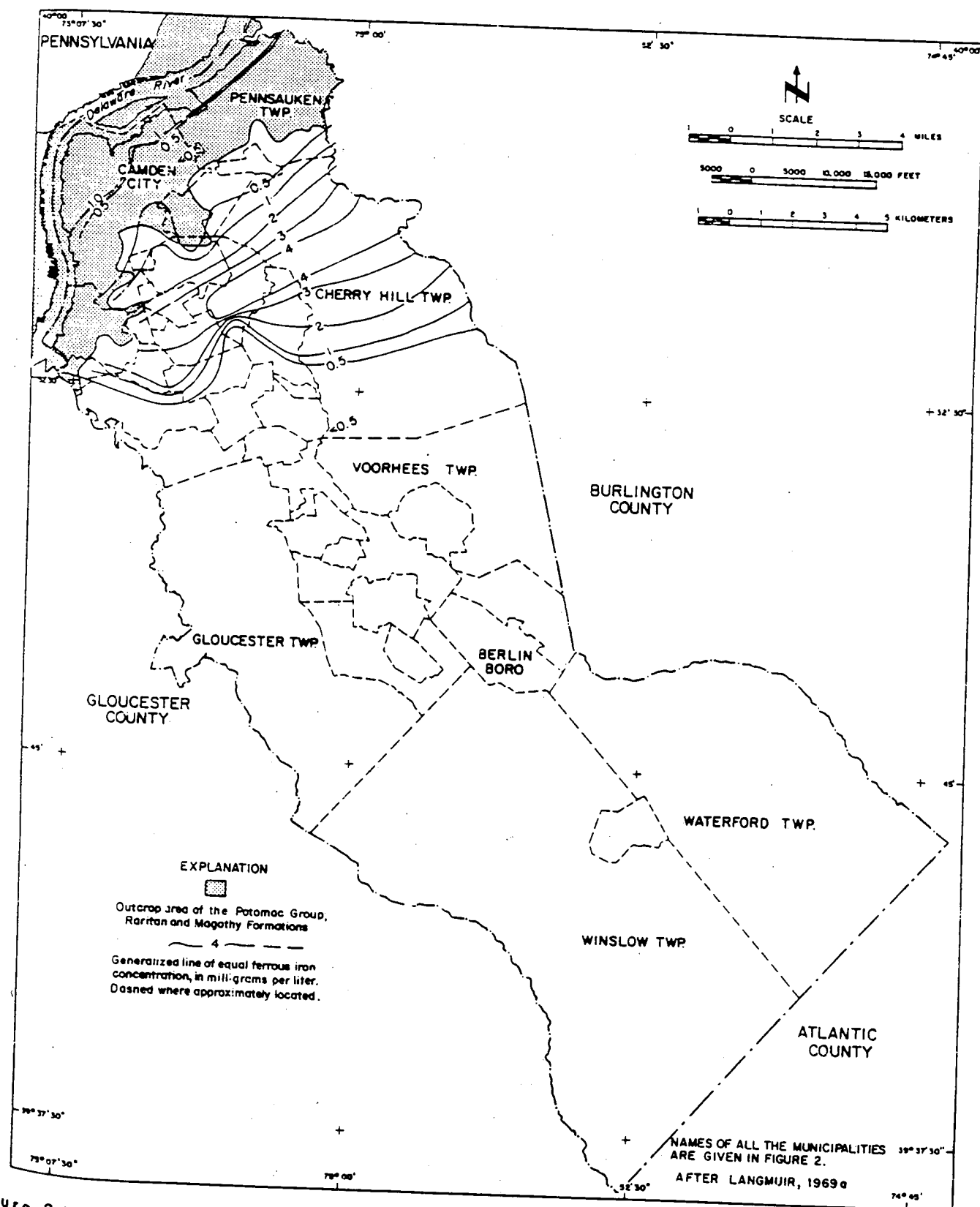


Figure 24. — Map showing generalized ferrous iron concentrations in water of the Potomac-Raritan-Magothy aquifer system in Camden County, 1965.

highest total iron concentrations occurred adjacent to the outcrop area.

Farther downdip both the dissolved ferrous and suspended ferric iron species decrease gradually to less than 0.5 mg/l. Langmuir (1969b) attributed the gradual decline in ferrous species to an increase in the stability of the suspended amorphous material due to aging, coupled with adsorption of ferrous iron by the oxyhydroxides and partial conversion of the amorphous phase to goethite. The decrease in suspended ferric species is interpreted by Langmuir as being caused by cation adsorption, aging, coagulation, and settling.

Ground-Water Contamination

Contamination of the water in the Potomac-Raritan-Magothy aquifer system is presently limited to the area at or near the outcrop. Contamination of the water-table and the artesian aquifer underlying Philadelphia has been thoroughly documented for the period prior to 1956 by Greenman and others (1961). They cite many instances of contamination, with the largest known area of contamination from industrial wastes located in the League Island Trough.

The League Island Trough is shown on the bedrock surface map of the Philadelphia area (fig. 25). The trough, filled with highly permeable sediments, has a northwest trend. A geologic section showing the distribution of the water-bearing sands and gravels from the Schuylkill River in Philadelphia through the Philadelphia Navy Base to the Texas Company's Eagle Point works near Westville, New Jersey, just south of the Camden County line, is shown in figure 26. The lower artesian aquifer (Farrington Sand of Greenman and others, 1961), consisting of sands and gravel immediately above the bedrock, has a direct hydraulic connection with the lower aquifer being tapped by the Texas Company wells in West Deptford Township, Gloucester County.

Barksdale and others (1958, p. 121) stated that, "Originally, the wells at the Navy Base yielded waters that were similar in chemical characteristics to that from the wells of The Texas Co." Greenman and others (1961, plates 21 and 22) indicate high concentrations of sulfates and dissolved solids in the water of the lower artesian aquifer in the League Island Trough in 1956. A sample from one well had more than 1,300 mg/l of sulfate. The movement of ground water with high

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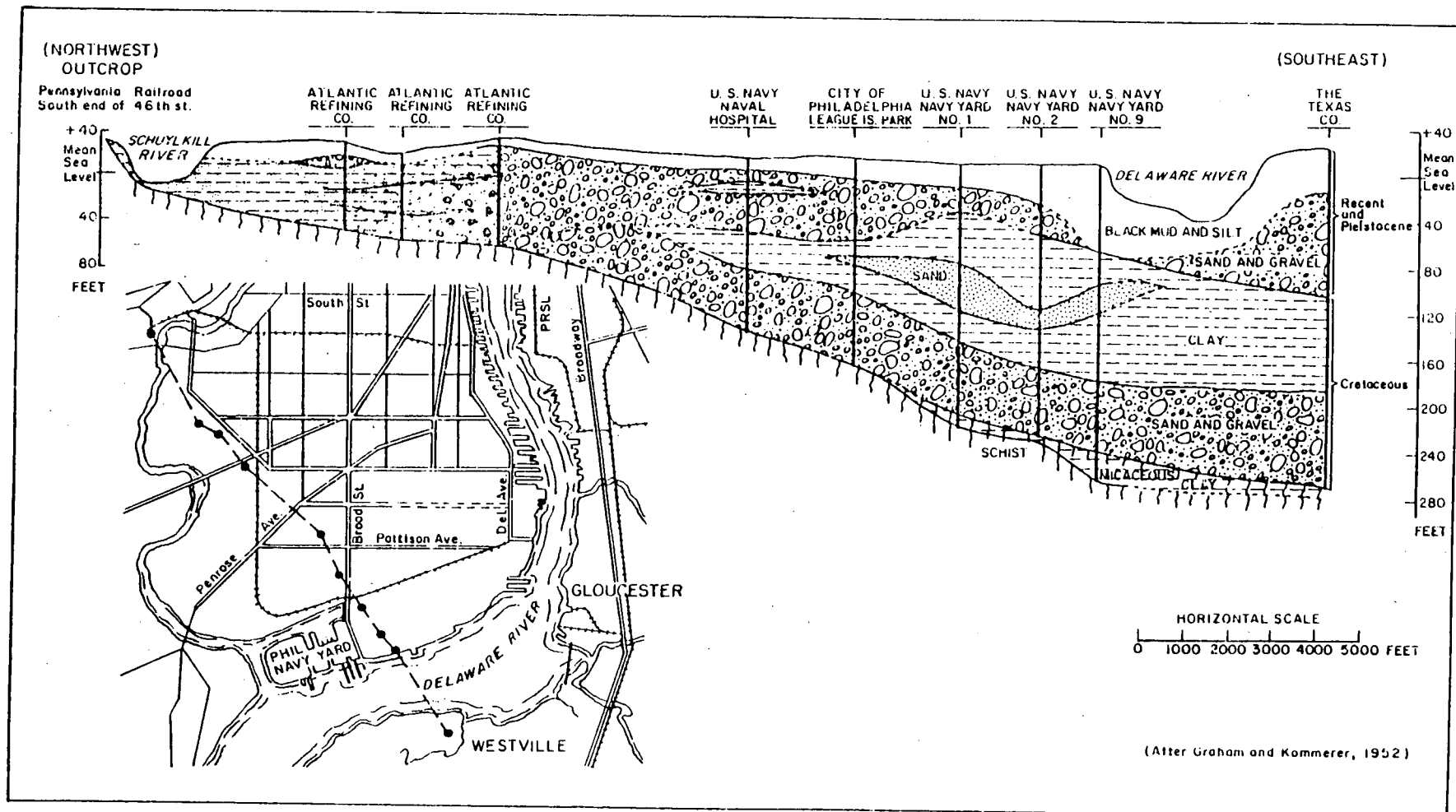


Figure 26. — Geologic cross section, Philadelphia, Pa. - Westville, N. J.

concentration of sulfates and dissolved solids was documented (Greenman and others, 1961) as moving downdip along the trough. The location of the 200 mg/l sulfate line in 1956 (Greenman and others, 1961) is shown in figure 27.

Withdrawal of water at the Philadelphia Navy Base from the lower aquifer had a regional effect on the potentiometric surface. As documented by Greenman and others (1961), heavy pumping at the Philadelphia Navy Base provided the hydraulic gradient that caused the movement of poor quality water from the head of League Island Trough downdip toward the Navy Base. Barksdale and others (1958, p. 121) stated that if pumping were greatly curtailed at the Navy Base the contaminated water would move beneath the river into New Jersey. In 1966 withdrawals at the Navy Base were substantially curtailed, while other wells in the area had been shut down. The Navy Base wells no longer act as a shield for the New Jersey wells and pumping at the Texas Company wells and other wells in New Jersey provided a new hydraulic gradient. A map of the potentiometric surface for the artesian aquifer in the Philadelphia area in October 1968 is shown on figure 28. The area with the lowest potentiometric surface is the area of the Texas Company well field. The nearest pumping to Navy Base wells is the Texas well field. Pumpage for 1968 for this well field was an average of 5.5 mgd. This was the largest total daily pumpage from the lower aquifer in the vicinity. In 1968 water samples of wells tapping the lower aquifer in Philadelphia, Camden area, and the Texas Company well field were collected and analyzed. Figure 27 shows the change in the 200 mg/l sulfate line from 1956 to 1968. The high sulfate, high dissolved-solids water will probably continue to move towards the Texas Company well field if present or increased pumpage rates are maintained.

Additional water samples were collected in 1971 from wells tapping the lower artesian aquifer for chemical (table 4) and trace-element analyses (table 10). The sulfate concentrations are shown in figure 27. Results indicate a decrease in concentrations of sulfate and dissolved solids from 1968 to 1971 in Navy Base wells 4 (PH 11) and 11 (PH 16), but an increase in Navy Base well 9 (PH 13). Navy Base wells 4 and 11 are located downdip from an area that had lower concentrations of sulfate in 1956 (Greenman and others, 1961, plate 22). If movement of ground water did occur downdip, there would be first an increase and then a decrease of sulfate content. Analyses for 1968 and 1971 indicate the decrease in sulfate concentration suggesting movement of ground water downdip. The sulfate concentration updip from Navy Base well 9 in 1956, as given in Greenman and others (1961, plate 22), indicates progressively higher sulfate concentrations.

Analysis of samples taken from Navy Base well 9 in 1967 and 1971 indicates progressively higher sulfate also suggesting movement of ground water downdip toward the Texas Oil Company well field.

The concentration of 24 trace elements in the water samples were obtained from wells tapping the lower aquifer. Results of the analysis (table 10) indicate that only iron and manganese exceed the limits suggested by the U. S. Public Health Service for drinking water. High concentrations of both these elements are not uncommon in the Potomac-Raritan-Magothy aquifer system and have been found in areas of no known contamination resulting from man's activities.

Another area of ground-water contamination, documented by Greenman and others (1961), is the artesian aquifer in the area north of the Philadelphia Navy Base, northwest of the Walt Whitman Bridge. Water from the well (PH 6) at the center of this area had a sulfate concentration of 231 mg/l in 1956 (Greenman and others, 1961, plate 22). Recent analyses of water from wells in this same area (table 4) show a lower sulfate concentration at the center of the area. Water from the same well (PH 6) at the center of the area had a sulfate concentration of 162 mg/l in July 1967 (table 4), a decrease in sulfate concentration of over 30 percent. However, sulfate and dissolved solids in water from PH 7, a well downdip from well PH 6, increased substantially. Sulfate concentration of water from well PH 7 in February 1956 was 18 mg/l (Greenman and others, 1961). In July 1967 the sulfate concentration was 22 mg/l and in May 1971, 131 mg/l (table 4), a 600 percent increase. The increase in sulfate concentration may be due to movement of water from well PH 6 toward well PH 7. Figure 28 shows the area at well PH 7 to be a center of a regional cone of depression. There is a possibility that the contaminated water in the Navy Base area may also move northward due to the much greater gradient in that direction since 1966. Continued surveillance of the quality of ground water would be a method that could be used to determine the change in quality and its possible effect on the ground-water supplies of New Jersey.

Another area of possible water-quality problems in the Potomac-Raritan-Magothy aquifer system in Camden County is located approximately one mile south of the Benjamin Franklin Bridge. Water samples from wells in Philadelphia (one mile south of the Benjamin Franklin Bridge) indicate that water in the lower aquifer contained high sulfates (as much as 284 mg/l) and dissolved solids (as much as 646 mg/l) in 1956 (Greenman and others, 1961, plates 21 and 33). Recent potentiometric measurements in the area show a gradient to the east and to the south; thus, it is possible for this poor quality water to move

to New Jersey. No water samples have been collected from wells in immediately adjacent areas of Camden County. Analyses of water from wells inland show that the quality in the lower aquifer has improved since 1927 (Thompson, 1932) to 1967 (table 4).

Chromium equal to or in excess of the State's standards for potable water has been found in water from two wells in Camden City. Routine sampling of the Camden City Water Department's distribution system by the State in December 1972 showed a high chromium content in the water delivered to a residence. Analyses for chromium from samples obtained from Camden City Water Department public-supply wells in the same area indicated that well 4 (CA 42) had chromium values in excess of the State's standards. Sampling of additional wells located nearby showed even higher chromium values for the West Jersey Hospital well (CA 47). Re-sampling of water from five wells in November 1973 confirmed the high chromium values for two of the five wells. The results of the analysis are given in table 10. The chromium values are 200 $\mu\text{g/l}$ (micrograms per liter) for the West Jersey Hospital well and 50 $\mu\text{g/l}$ for Camden City Water Department well 4. The State's standard for potable water is 50 $\mu\text{g/l}$ for hexavalent chromium. It can be assumed that most of the chromium reported in table 10 is hexavalent chromium. Both wells tap the same sand unit in the aquifer system. The well yielding water with the lower chromium values is located 600 feet east of the West Jersey Hospital well. The potentiometric head measurements made in November and December 1973 show water levels were lower east of the two wells, indicating an easterly hydraulic gradient with ground-water movement in that direction. Water-level measurements made in October 1968 indicated the same gradient direction. This would suggest the chromium content in the ground water in this sand unit would be higher in the area west of the West Jersey Hospital well.

The source of the chromium is not known. However, at least three metal plating companies are located within a radius of 1,600 feet. Analyses of waste water to sewer lines from three metal plating companies for samples collected in February and March 1973 show high chromium values in excess of 9 mg/l (written commun., New Jersey Department of Environmental Protection, 1973).

Barksdale and others (1953) and Greenman and others (1961) have shown that induced recharge from the Delaware River does occur. Deterioration of the quality of the river by man's activities may, in turn, cause water-quality problems in that part of the aquifer being recharged by the river. A "polluted" Delaware River is a possible source of water contamination in

the Potomac-Raritan-Magothy aquifer system in the northeastern part of Camden County.

Salt-Water Encroachment

There are two areas of potential salt-water encroachment in the Potomac-Raritan-Magothy aquifer system in Camden County. One area is along the Delaware River and the second is near the fresh water-salt water interface in Winslow Township.

The Delaware River in the vicinity of Camden County is tidal. Normally salt water from the ocean does not reach the vicinity of Camden. In extended drought, such as that between 1961 and 1966, a decrease in fresh-water inflow to the estuary permits salt water to move farther upstream. For example, in 1965 and 1966 the salt front advanced farther upstream in the Delaware estuary than had been previously recorded. On September 1966 the 250 mg/l chloride line reached the vicinity of the Benjamin Franklin Bridge (Keighton, 1969). At the same time the chloride concentration of the Delaware River at Delaware Memorial Bridge was 4,340 mg/l. Aquifer test and water-quality data given in another section of this report have indicated hydraulic connection between the river water and nearby wells. If the river's chloride content in the Philadelphia-Camden area were to remain at relatively high levels for a long period of time, there could be movement of this water from the river into the aquifer system, especially the middle and upper aquifers.

The second area of potential salt-water encroachment in the aquifer system is in the vicinity of the salt water-fresh water interface. The interface in the aquifer system is actually a broad zone. An approximate location in Camden County based primarily on the chloride concentration of the water from the New Brooklyn Park well 1 (WI 27) is shown on figure 18. The chloride concentration of water from this well in 1960 (Donsky, 1961) was 310 mg/l. In 1967 and in 1972 the chloride concentration (table 4) was approximately the same suggesting no change in the lower aquifer for the 12-year period. The chloride concentration of a water sample from the upper aquifer (New Brooklyn Park 2, WI 28) was 4.2 mg/l in 1961 (Donsky, 1961) and 2.5 mg/l in 1972 (table 4).

The ground-water system is a dynamic one. Changes in the hydraulic gradients due to pumping may cause the movement of higher chloride water towards centers of pumpage. Withdrawals from the Potomac-Raritan-Magothy aquifer system in the central part of the county is almost all from the upper

aquifer (fig. 16). In addition pumping withdrawals from the upper aquifer at Bell's Lake, Pitman, Glassboro, and Clayton in Gloucester County to the south has further enlarged the cone of depression over a sizable area (fig. 18). Increased pumping in this area of Gloucester County and additional pumping downdip of areas of existing pumping in Camden County may move water of high chloride content toward the centers of pumping. Water-level measurements made in October 1968 indicate that the potentiometric surface in the upper aquifer is lower in the area of pumping than in the downdip area (fig. 18). The direction of the hydraulic gradient is from the interface toward the center of pumping. It is, therefore, possible for the high-chloride water to migrate toward the centers of pumping.

An extensive aquifer test at Courses Landing in Salem County has shown that the most immediate danger of salt-water contamination of middle and upper aquifers is probably by vertical coning of the salt water from the lower aquifer (Gill and Farlekas, written commun., 1969). For example, heads in the upper aquifer at Courses Landing were lowered by withdrawals causing a head difference to develop between the upper and lower aquifer. This change in the hydraulic gradient caused the higher chloride water to move upward from the lower aquifer. A similar situation may exist in southeastern Camden County and adjacent Gloucester County. Head measurements made in October 1968 at the New Brooklyn Park observation wells (WI 27 and WI 28) indicate that a 16-foot head differential exists between the upper aquifer and the lower aquifer. The well tapping the upper aquifer had the lower head. The head in the upper aquifer was at an altitude of 42 feet below mean sea level. The nearest withdrawal point from the Potomac-Raritan-Magothy aquifer system is 6 miles from the New Brooklyn Park wells. In Glassboro, Gloucester County head measurements of approximately 50 feet below mean sea level were observed in October 1968 during non-pumping conditions in three wells tapping the upper aquifer. Under pumping conditions the water levels would be at least 20 feet lower near the pumping wells. The potentiometric surface for the lower aquifer is not known for the Glassboro area, but in all probability it is higher than the potentiometric surface in the upper aquifer. If the head in the lower aquifer is significantly higher than the head in the upper aquifer, the head differential would cause water to move upward into the upper aquifer. High-chloride water (chloride content greater than 250 mg/l) underlies the water in the upper aquifer in the southeastern part of Camden and adjacent Gloucester County (fig. 18). Hence, vertical coning of high-chloride water is a possibility in this area.

Merchantville Formation and Woodbury Clay

Geology

The Merchantville Formation and Woodbury Clay crop out in an irregular-shaped belt in the northwestern part of Camden County (fig. 4). Together they have an outcrop area of 18.7 square miles.

The Merchantville Formation is the oldest major marine glauconitic unit in the New Jersey Coastal Plain. The contact between the Merchantville Formation and the underlying Magothy Formation is always sharp and disconformable (Owens and Sohl, 1969). The thickness of the Merchantville Formation is consistently 50 feet in outcrop but the lithology varies along strike. The formation is essentially a dark gray to grayish-black micaceous clay to clayey silt with beds and lenses of glauconite sand, especially near the top of the formation. A sand unit which ranges from 0-30 feet thick in Camden County has been mapped from geophysical logs. The thickness is shown on figure 29. The structure contour map of the top of the sand unit is given in figure 30. Three cross sections (fig. 31) based on geophysical logs suggest that this unit is near the top of the Merchantville Formation.

The Woodbury Clay which overlies the Merchantville Formation is a grayish-black massive micaceous clayey silt. The thickness of the Woodbury in the outcrop area is reported to be 50 feet (Owens and Sohl, 1969). Calcareous fossils found at Haddonfield indicate a marine origin for the unit (Owens and Sohl, 1969). The top of the Woodbury Clay is delineated in figure 32. The thickness of the Merchantville Formation and Woodbury Clay ranges from 106 to 165 feet in Camden County and thickens downdip as shown on figure 33.

Particle-size analyses of samples of the Merchantville Formation and Woodbury Clay from the New Brooklyn Park well (WI 27) in Winslow Township are given in table 5. The analyses of the Woodbury Clay indicate a range of 70 to 98 percent clay and silt. The analyses of the Merchantville Formation indicate a range of 42 to 56 percent of clay and silt.

Hydrology

The Merchantville Formation and Woodbury Clay function

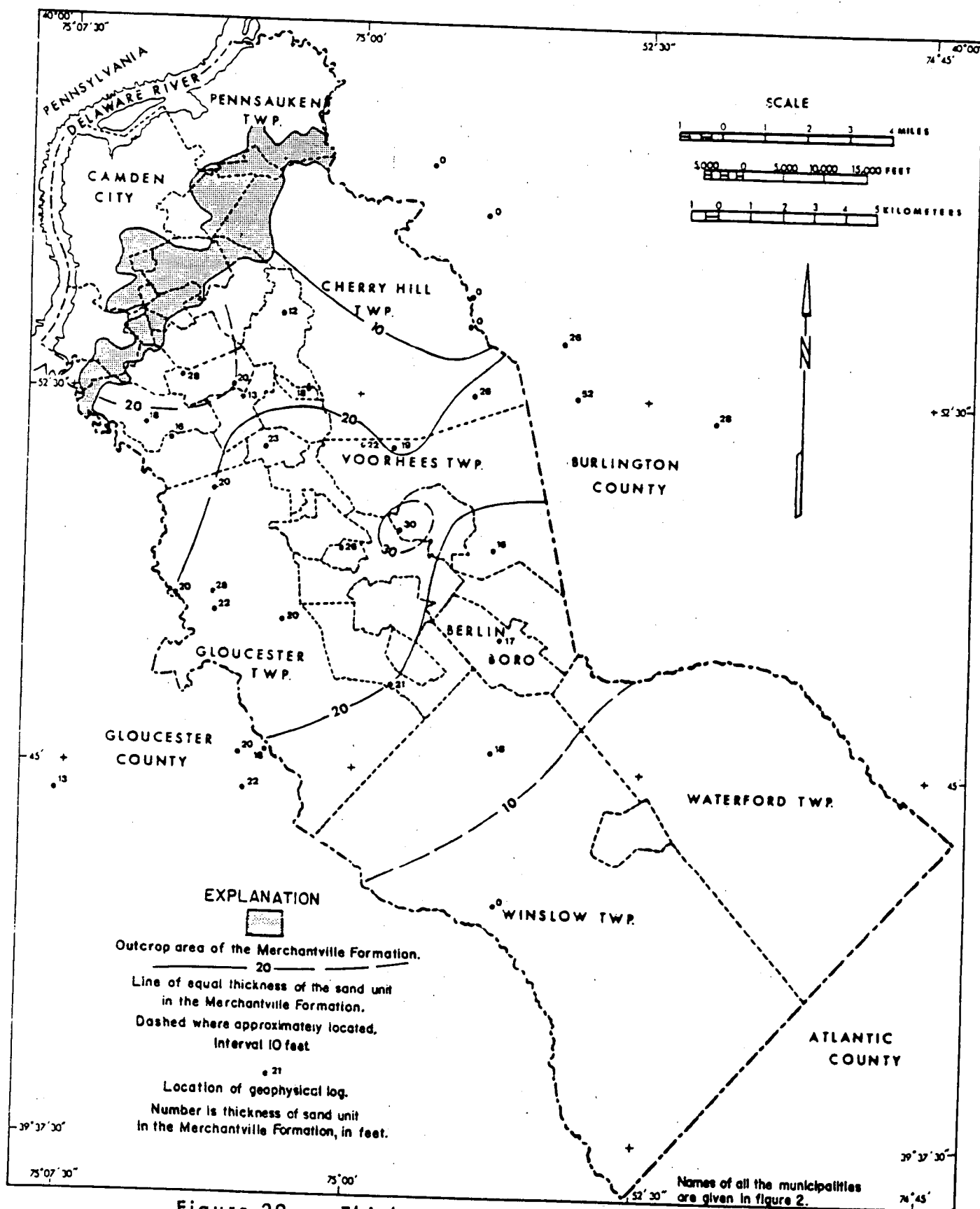


Figure 29. — Thickness map of the sand unit in the Merchantville Formation in Camden County.

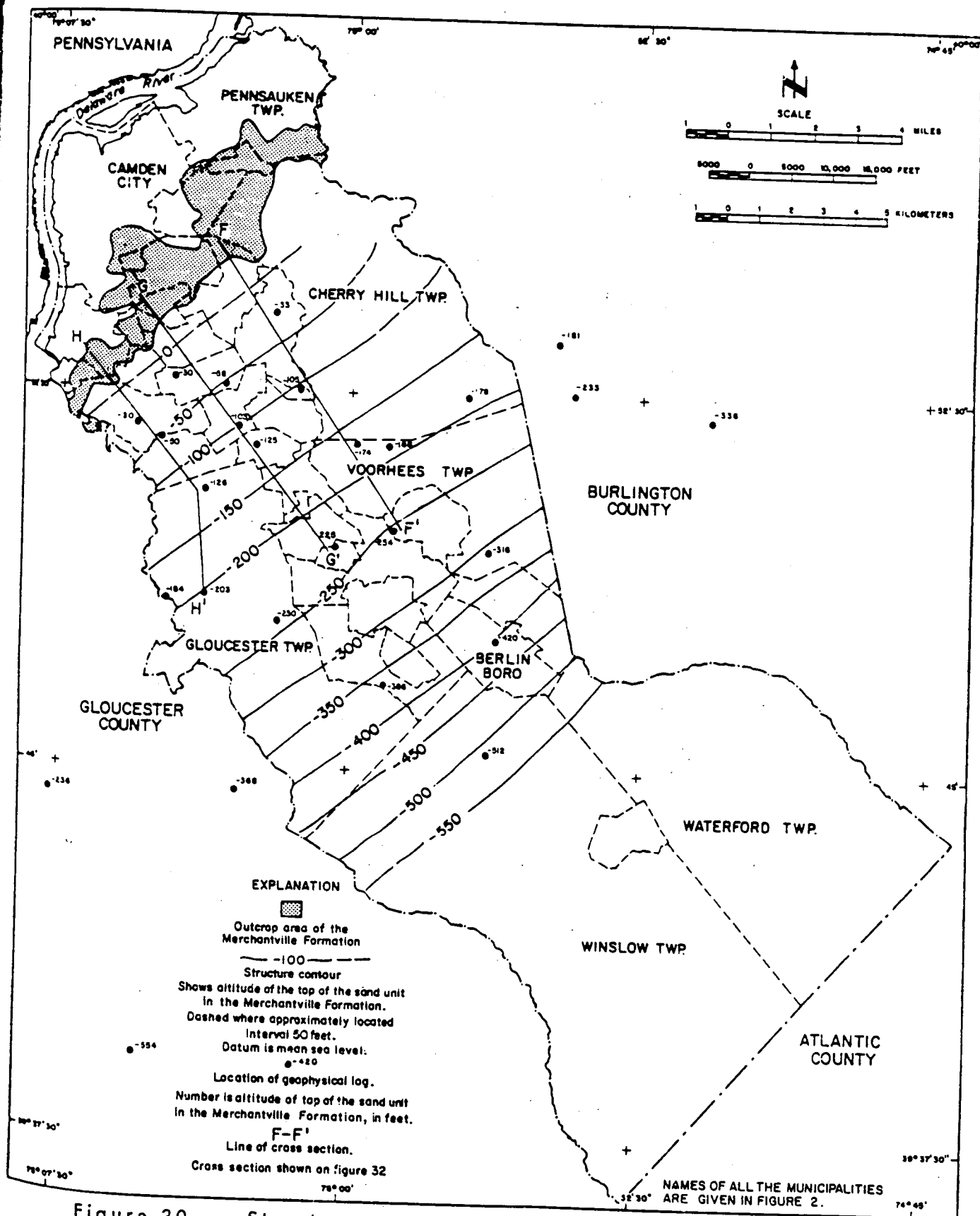


Figure 30. — Structure contour map of the top of the sand unit in the Merchantville Formation in Camden County.

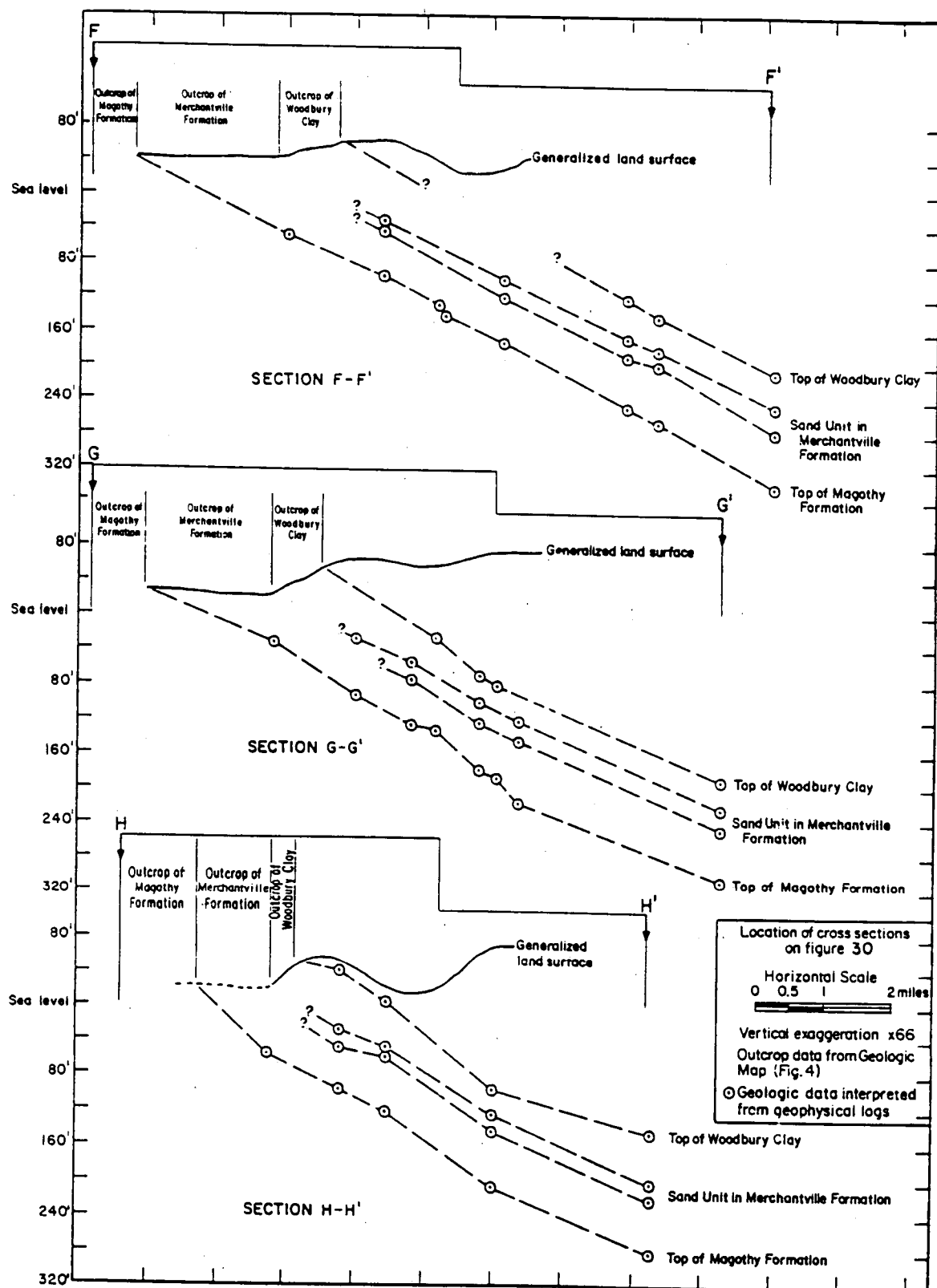


Figure 31. — Geologic sections of the Coastal Plain in the northeastern part of Camden County.

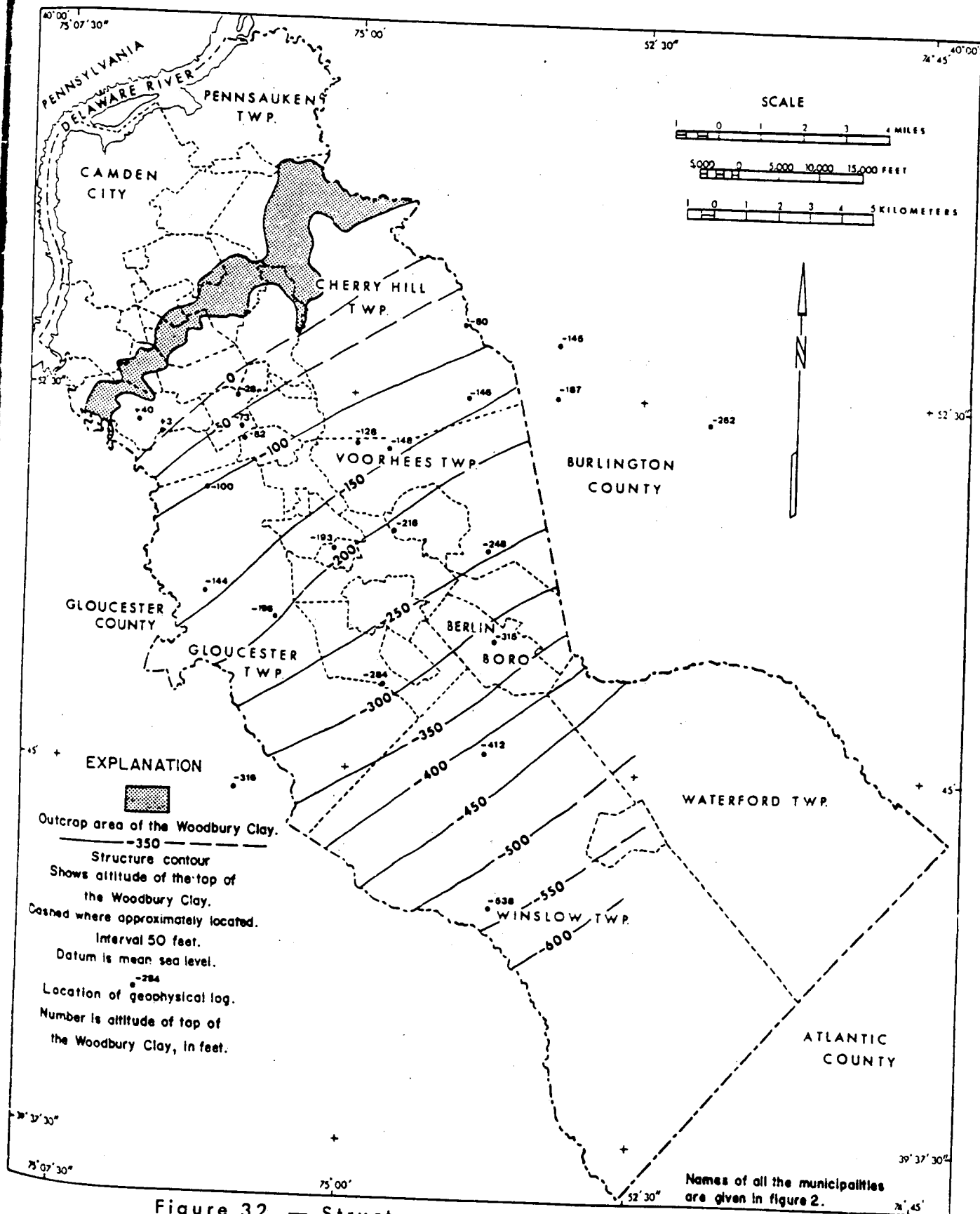


Figure 32. — Structure contour map of the top of the Woodbury Clay in Camden County.

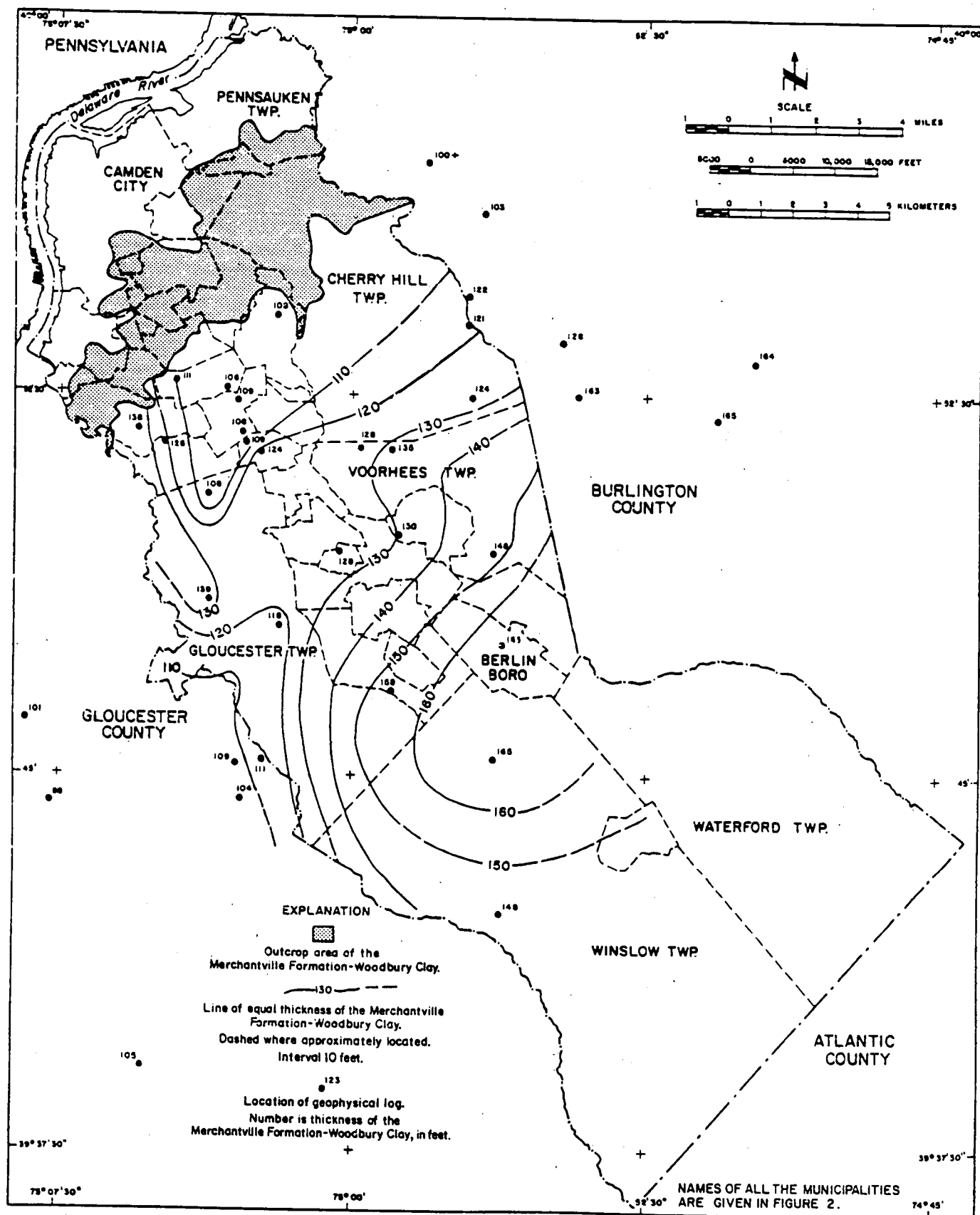


Figure 33. — Thickness map of the Merchantville Formation-Woodbury Clay in Camden County.

as semipervious confining units. However, the lensing sand unit near the top of the Merchantville Formation is tapped for domestic water supplies. Yields range from 15 to 50 gpm for the wells given in table 1. Wells that tap this sand unit are located near the outcrop area. The prepumpage potentiometric surface in this unit in Camden County was at a higher level than the prepumpage potentiometric surface of the Potomac-Raritan-Magothy aquifer system and at a lower level than the prepumpage potentiometric surface in the overlying Englishtown Formation, for the same area. Sparse water-level data from drillers' records of wells drilled in the early to mid-1950's suggest a decline in potentiometric surface from 1900 to the 1950's.

Quality of Water

Only one sample (GT 4) was obtained from a well tapping the sand unit in the Merchantville Formation. The sample (table 4) had a high pH (8.3), low chloride content (0.8 mg/l), low sulfate content (3.9 mg/l), and low dissolved solids (107 mg/l).

Englishtown Formation

Geology

The Englishtown Formation crops out in the northwestern part of the county in an area of approximately 7.7 square miles (fig. 4). It lies conformably above the Woodbury Clay. The transition from the Woodbury Clay to the Englishtown Formation is marked by a gradual increase of quartz sand and a decrease in silt and clay.

The lithology of the Englishtown Formation in New Jersey varies along strike and downdip. Several lithofacies have been recognized. In the southern part of the coastal plain the Englishtown is a massive dark-colored silty sand that resembles the non-glaucconitic beds of the Merchantville Formation (Owens and Sohl, 1969). It is 40 feet thick in outcrop. Rush (1968, fig. 22) has shown that the aggregate thickness of sand in the Englishtown decreases downdip toward the south in Burlington County.

The structure contours (fig. 34) on the top of the Englishtown Formation in Camden County indicate that the

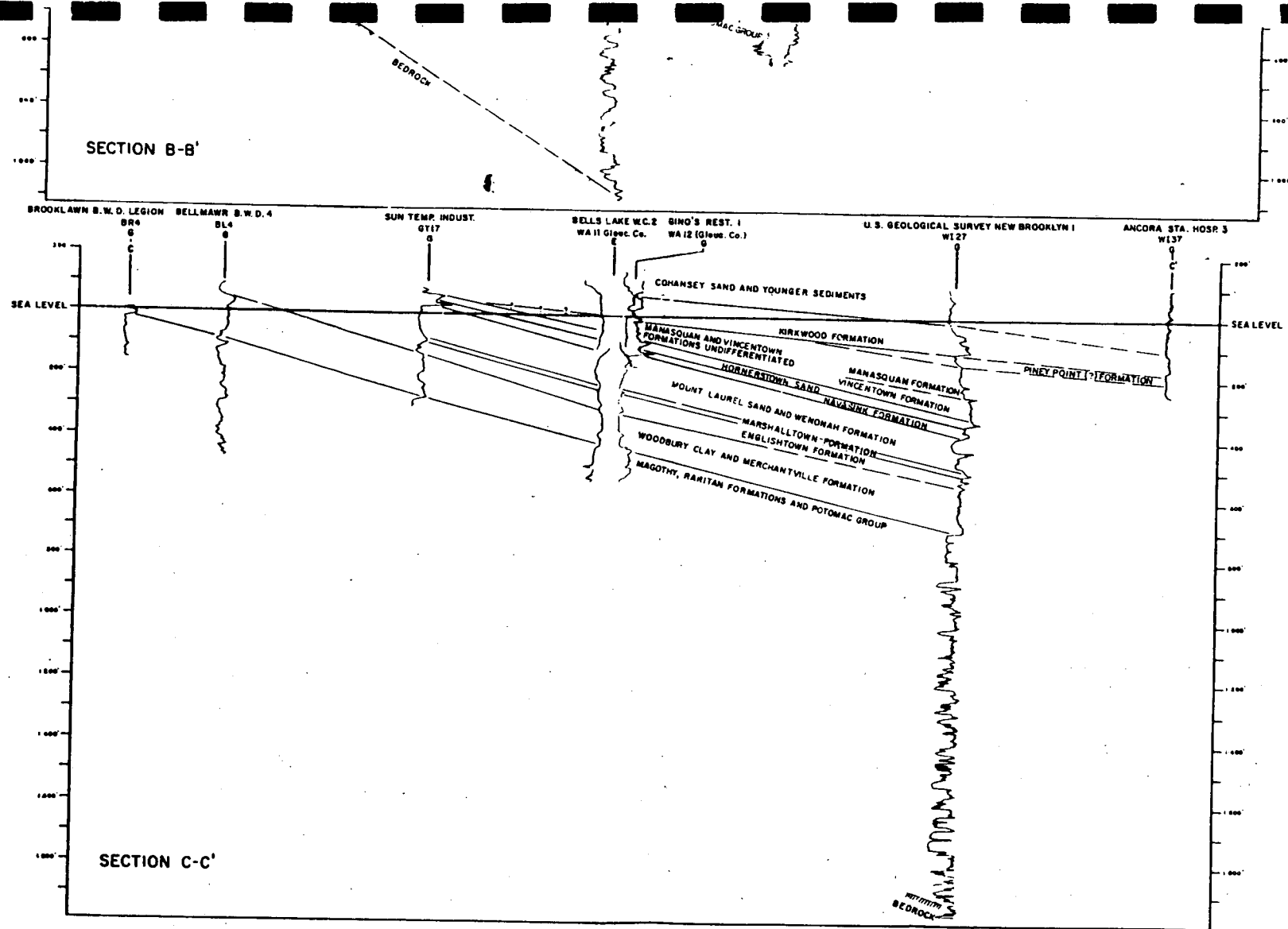


Figure 5.— Geologic sections A-A', B-B', and C-C' of the Coastal Plain in Camden County.

Table 2...Geologic formations and their water-bearing properties in Camden County

System	Series	Stage	Subdivision	Lithology	Thickness	Geohydrologic properties	
Cenozoic	Quaternary	Holocene	Alluvial deposits	Gray mixture of clay, silt, organic material, sand, and gravel.	0-10	Too thin to be tapped for water.	
			Eolian deposits	Light gray, well sorted quartz sands.	0-10	Too thin to be tapped for water.	
		Pleistocene	Columbia Group	Cape May Formation	Yellow to brown to gray, medium to coarse-grained quartzose sand.	0-40	Usually hydraulically connected with underlying aquifers.
				Pennsauken Formation	Yellow to brown, medium to coarse-grained quartzose sand.	0-30	
				Bridgeton Formation	White to brown, fine to very coarse quartzose sand and gravel, fairly well sorted and subangular.	0-30	
	Tertiary	Pliocene(?) and Holocene(?)		Conansey Sand	Yellowish orange, fine to coarse quartzose sand and fine gravel, somewhat micaceous, contains lenses of silt and clay.	15-140(?)	A major aquifer. Ground water occurs generally under water-table conditions. Water is of satisfactory quality; generally soft but occasionally high in iron. Wells yield up to 1,000 gpm.
				Kirkwood Formation	Light olive gray, glauconitic, slightly micaceous, very fine to fine quartzose sand.	30-100	A minor aquifer. Excellent to poor capability to yield water.
		Eocene	Yorresian	Piney Point(?) Formation	Glauconitic sands, shell beds.	0-40	Does not crop out in Camden County. Presence questionable in subsurface. Too thin to be tapped for water.
				Manasquan Formation	Olive gray, clayey, quartz, glauconitic, silty sand.	0-140	Does not crop out in Camden County. Present only in subsurface. Moderately permeable confining bed. Locally water-bearing sand unit in southeastern part of Camden County.
		Paleocene	Thanetian	Vincenotown Formation	Light brown to gray, very fine, calcareous, micaceous, sand and silt.	0-80	Does not outcrop in Camden County. Present only in subsurface. In most of the county it is a leaky confining unit.
				Danien	Bornertown Sand	Dark green glauconitic sand and clay.	18-36
				Naesink Formation	Dark green to black glauconitic sand and clay.	15-34	
Mesozoic	Cretaceous	Upper Cretaceous	Upper Campanian	Mount Laurel Sand	Light gray, fine to coarse-grained quartz sand.	80-132	A major aquifer. Wells yield up to 535 gpm. Good capability to yield water. Quality of water good, locally high in iron.
				Woonan Formation	Dark gray, poorly sorted, very micaceous, silty, fine quartz sand.		
			Lower Campanian	Marshalltown Formation	Dark gray, micaceous, silty glauconitic sand.	20-25	Confining bed.
				Englishtown Formation	Massive dark-colored silty sand.	16-77	Not used extensively. Greatest thickness of sand in central portion of county. Yields up to 510 gpm. Good to poor capability to yield water.
				Woodbury Clay	Grayish-black massive micaceous clayey silt.	106-165	Confining bed.
				Merchantville Formation	Dark gray to grayish-black micaceous clay to clayey silt with beds and lenses of glauconitic sand.		Leaky confining bed and minor aquifer. Sand unit near top of formation used for domestic wells.
			Santonian	Magothy Formation	Alternating clays, silts, sands, and gravel.	25-1700	Major aquifer system in Camden County. Series of confining beds and aquifers. Wells yield up to 1,850 gpm. Excellent capability to yield water. Water high in iron in portion of county. Chloride content increasing downdip of New Brooklyn Post area in Winslow Township. Contamination of aquifer may occur near Delaware River.
				Faritan Formation			
				Potomac Group			
		Lower Cretaceous					
	Pre-Cretaceous		Pre-Cretaceous consolidated rocks and Wissahickon Formation (Precambrian to Lower Ordovician).	Schist and gneiss.	Unknown	No water producing wells known to tap consolidated rocks in Camden County.	

*Owens and Sohl, 1969; supplement to field trip No. 2, Guidebook.

REFERENCE NO. 12

USGS WELL INVENTORY

(WELLS > 75 gpm)

CAMDEN COUNTY

C	D	E	F	H	M	Z
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U.S. GEOLOGICAL SURVEY TRENTON, NEW JERSEY

2/20/86

GE

SELECTED INFORMATION OF WELLS FROM THE GROUND WATER SITE INVENTORY DATABASE
CAMDEN COUNTY

USGS UNIQUE ID	SITE ID	LATITUDE	LONGITUDE	MUNICIPALITY	SITE OWNER	LOCAL IDENTIFIER	DATE COMPLETED	USE OF SITE	ORIG WATER USE	CURR WATER USE	LAT LON ACC
070001	395326075003581	395326	750758	AUDUBON BORO	CORVELLI, D	1949	09/06/1949	W	H	H	M
070002	3953270750032401	395327	750758	AUDUBON BORO	PUBLIC SERV E-G	PSEGC 1	01/01/1953	W	N	N	S
070003	3951460750035401	395146	750754	BARRINGTON BORO	OWENS CORNING	CORNING 1	01/01/1956	W	N	N	S
070004	3952000750035201	395200	750752	BARRINGTON BORO	WEYERHAEUSER CO	1	07/28/1969	W	N	N	S
070005	3952240750030301	395224	750703	BARRINGTON BORO	NJ WATER CO	TEST WELL T 1	03/28/1968	Z	U	U	S
070006	3952240750030302	395224	750703	BARRINGTON BORO	NJ WATER CO	TEST WELL T 2	03/27/1968	Z	U	U	S
070007	3952310750031101	395231	750711	BARRINGTON BORO	NJ WATER CO	BARRINGTON 5	10/01/1925	W	P	P	F
070008	3951510750033001	395151	750733	BELLMAWR BORO	BELLMAWR B W D	BBWD 4	08/08/1966	W	P	P	F
070009	3951510750033002	395151	750733	BELLMAWR BORO	BELLMAWR B W D	BBWD TES 1	04/20/1965	T	U	U	F
070010	3952030750041401	395203	750414	BELLMAWR BORO	PASSERO, SALVATR	1-1953	01/01/1953	W	H	H	F
070011	3952190750041601	395220	750438	BELLMAWR BORO	BELLMAWR B W D	BBWD 2	01/01/1942	Z	P	U	
070012	3952210750043201	395221	750437	BELLMAWR BORO	BELLMAWR B W D	BBWD 3	08/02/1956	W	P	P	F
070013	3952220750043201	395221	750436	BELLMAWR BORO	BELLMAWR B W D	BBWD 1	06/15/1942	W	P	P	S
070014	394644074553901	394644	745539	BERLIN BORO	FORRAL, GREGORY	1954	03/10/1954	W	N	N	S
070015	394649074552201	394648	745622	BERLIN BORO	BERLIN WATER D	BWD 11	07/11/1972	W	P	P	S
070016	394653074554301	394653	745643	BERLIN BORO	CHILLENNI, D	1951	01/01/1951	W	H	H	S
070017	394705074544401	394705	745444	BERLIN BORO	OWENS CORNING	1	06/04/1951	W	N	N	S
070018	394738074561401	394738	745614	BERLIN BORO	BERLIN WATER D	BWD 9	07/15/1955	W	P	P	F
070019	394738074561402	394738	745614	BERLIN BORO	BERLIN WATER D	BWD 10	01/01/1967	W	P	P	S
070020	394738074561403	394738	745614	BERLIN BORO	BERLIN WATER D	BWD 1	01/01/1923	W	P	P	S
070021	394738074561404	394738	745614	BERLIN BORO	BERLIN WATER D	BWD 5	01/01/1950	Z	P	U	S
070022	394738074561405	394738	745614	BERLIN BORO	BERLIN WATER D	BWD 8	06/05/1952	U	U	U	S
070023	394738074561406	394738	745614	BERLIN BORO	BERLIN WATER D	BWD 6	02/20/1941	Z	P	U	S
070024	394818074551201	394818	745512	BERLIN TWP	TILLER, ARTHUR	1952	09/20/1952	W	H	H	S
070025	395244075072702	395244	750727	BROOKLAWN BORO	BROOKLAWN B W D	LEGION	01/01/1942	Z	P	U	S
070026	395232075071401	395232	750714	BROOKLAWN BORO	PUBLIC SERV E-G	PSEG-1958	06/12/1958				M
070027	395427075069801	395427	750698	CAMDEN CITY	WATER WORKS T1	01/01/1942	T	U	U	S	
070028	395435075072001	395435	750720	CAMDEN CITY	SO JRSEY PORT CM	NY SHIP PW 1	01/01/1956	W	N	N	F
070029	395435075072005	395435	750720	CAMDEN CITY	NY SHIPBUILDING	9	09/30/1959	W	N	N	F
070030	395447075071101	395447	750711	CAMDEN CITY	SO JRSEY PORT CM	NY SHIP 5A	08/17/1940	D	U	U	F
070031	395447075071102	395447	750711	CAMDEN CITY	NY SHIPBUILDING	4	01/13/1939	W	N	N	F
070032	395447075071103	395447	750711	CAMDEN CITY	NY SHIPBUILDING	5	01/01/1940	W	N	N	F
070033	395447075071104	395447	750711	CAMDEN CITY	NY SHIPBUILDING	8	05/24/1944				F
070034	395449075071501	395449	750716	CAMDEN CITY	SO JRSEY PORT CM	NY SHIP 6	11/15/1940	W	N	N	S
070035	395449075071502	395449	750716	CAMDEN CITY	NY SHIPBUILDING	1	08/20/1930	W	N	N	F
070036	395449075071503	395449	750716	CAMDEN CITY	NY SHIPBUILDING	2	10/10/1930	W	N	N	F
070037	395449075071504	395449	750716	CAMDEN CITY	NY SHIPBUILDING	3	01/01/1935	W	N	N	F
070038	395457075064101	395457	750641	CAMDEN CITY	SO JRSEY PORT CM	NY SHIP 7	12/03/1942	U	U	U	S
070039	395457075064102	395457	750641	CAMDEN CITY	CAMDEN CITY W D	CITY 7N	06/02/1966	W	P	P	S
070040	395457075064101	395457	750641	CAMDEN CITY	CAMDEN CITY W D	CITY 7	01/01/1945	Z	P	U	S
070041	395457075064102	395457	750641	CAMDEN CITY	CAMDEN CITY W D	CITY 7-1928	09/10/1928	W	P	U	S
070042	395502075065501	395502	750655	CAMDEN CITY	CAMDEN BREWERY	/ /		W	N	N	S
070043	395507075072901	395507	750729	CAMDEN CITY	MAFCO	2	11/19/1951	W	N	N	S

SELECTED INFORMATION OF WELLS FROM THE GROUND WATER SITE INVENTORY DATABASE
CAMDEN COUNTY

USGS UNIQUE ID	SITE ID	LATITU	LONGTU	MUNICIPALITY	SITE OWNER	LOCAL IDENTIFIER	DATE COMPLETED	USE OF SITE	ORIG WATER USE	CURR WATER USE	LAT LON ACC
070173	395428075051001	395428	750310	COLLINGSWOOD BORO	COLLINGSWOOD WD	CWD 6 TEST	01/01/1964	T	U	U	M
070174	395506075050701	395506	750507	COLLINGSWOOD BORO	FRIENDSHIP DAIRY	DAIRY 1	01/01/1955	W	N	N	S
070175	395515075043601	395521	750439	COLLINGSWOOD BORO	COLLINGSWOOD WD	CWD 1R	10/24/1949	W	F	F	S
070176	395519075043201	395519	750432	COLLINGSWOOD BORO	COLLINGSWOOD WD	CWD 2R	06/02/1960	W	F	F	S
070177	395521075043501	395521	750435	COLLINGSWOOD BORO	COLLINGSWOOD WD	CWD 4	07/14/1942	W	F	F	S
070178	395522075043201	395522	750432	COLLINGSWOOD BORO	COLLINGSWOOD WD	CWD 3	06/02/1960	W	F	F	F
070179	395526075042401	395526	750424	COLLINGSWOOD BORO	COLLINGSWOOD WD	CWD 5	02/06/1956	W	F	F	S
070180	394923074571401	394923	745714	GIBBSBORO BORO	US AIR FORCE	RADAR 2	01/01/1960	W	E	E	S
070181	394927074571501	394927	745715	GIBBSBORO BORO	US AIR FORCE	RADAR 1	04/08/1959	W	H	H	S
070182	394944074571701	394944	745717	GIBBSBORO BORO	HALE, JAMES E	1952	01/01/1952	W	H	H	S
070183	394945074585501	394945	745855	GIBBSBORO BORO	NJ WATER CO	NJWC 43	01/01/1972	W	P	P	M
070184	394946074585501	394950	745855	GIBBSBORO BORO	NJ WATER CO	GIBBSBORO DB 1	01/12/1969	D	U	U	S
070185	394946074585502	394950	745855	GIBBSBORO BORO	NJ WATER CO	GIBBSBORO DB 2	01/25/1969	D	U	U	S
070186	394946074585503	394950	745855	GIBBSBORO BORO	NJ WATER CO	GIBBSBORO DB 3	02/04/1969	D	U	U	S
070187	394955074585201	394955	745852	GIBBSBORO BORO	FUCHS, KARL W	1-1951	07/24/1951	W	H	H	S
070188	395002074585101	395002	745851	GIBBSBORO BORO	NJ WATER CO	GIBBSBORO 42	05/22/1972	W	F	P	M
070189	395003074585101	395003	745851	GIBBSBORO BORO	NJ WATER CO	GIBBSBORO 41	01/01/1972	W	F	P	F
070190	395015074575201	395015	745752	GIBBSBORO BORO	LUCAS PAINT CO	MAIN	/ /	W	N	N	S
070191	395015074575202	395015	745752	GIBBSBORO BORO	LUCAS PAINT CO	STEAM PUMP	/ /	W	I	I	S
070192	395252075062301	395252	750623	GLOUCESTER CITY	GLOUCESTER C WD	GCWD 39	03/13/1958	Z	F	U	F
070193	395258075064101	395258	750633	GLOUCESTER CITY	CRESCENT TRLR PK	1	07/31/1952	W	F	F	M
070194	395308075074401	395308	750744	GLOUCESTER CITY	G & W NATURAL RES	4-DEEP	01/01/1958	W	N	N	S
070195	395308075074901	395308	750749	GLOUCESTER CITY	G & W NATURAL RES	5-DEEP	01/01/1954	W	N	N	S
070196	395308075075701	395308	750757	GLOUCESTER CITY	G & W NATURAL RES	2-DEEP	07/12/1954	W	N	N	S
070197	395313075080401	395313	750804	GLOUCESTER CITY	G & W NATURAL RES	3-DEEP	01/01/1958	W	N	N	S
070198	395314075074801	395314	750748	GLOUCESTER CITY	G & W NATURAL RES	1R-1973	03/08/1973	W	N	N	T
070199	395314075074901	395314	750749	GLOUCESTER CITY	G & W NATURAL RES	1-DEEP	01/01/1945	Z	N	U	S
070200	395315075061701	395315	750617	GLOUCESTER CITY	WILSON, H W JR	1-1954	01/01/1954	W	H	H	S
070201	395318075075501	395318	750755	GLOUCESTER CITY	AMSPEC CHEMICAL	HARSHAW 1	04/26/1948	W	N	N	S
070202	395321075074701	395321	750747	GLOUCESTER CITY	AMSPEC CHEMICAL	HARSHAW 3	09/26/1952	Z	U	U	S
070203	395322075075101	395322	750751	GLOUCESTER CITY	AMSPEC CHEMICAL	HARSHAW 2	03/21/1951	Z	N	U	S
070204	395322075075701	395322	750757	GLOUCESTER CITY	AMSPEC CHEMICAL	HARSHAW 4	03/18/1953	W	N	N	S
070205	395324075073601	395324	750736	GLOUCESTER CITY	HINDE AND DAUCH	3	01/01/1945	W	N	N	S
070206	395329075073201	395329	750732	GLOUCESTER CITY	HINDE AND DAUCH	2	01/01/1945	W	N	N	S
070207	395332075073401	395332	750734	GLOUCESTER CITY	HINDE AND DAUCH	JERSEY AVE 1	01/01/1945	W	N	N	F
070208	395335075073301	395335	750733	GLOUCESTER CITY	ATLANTIC ICE CO	1-62	07/20/1962	W	N	N	M
070209	395340075072801	395340	750728	GLOUCESTER CITY	PHILA DAIRY PRO	1	10/25/1949	W	N	N	M
070210	395343075065201	395343	750652	GLOUCESTER CITY	GLOUCESTER C WD	GCWD 42	01/01/1968	W	P	P	S
070211	395345075065301	395345	750653	GLOUCESTER CITY	GLOUCESTER C WD	GCWD 2	01/01/1929	U	U	U	F
070212	395346075065101	395346	750651	GLOUCESTER CITY	GLOUCESTER C WD	GCWD 32	01/01/1938	U	U	U	F
070213	395347075065101	395347	750651	GLOUCESTER CITY	GLOUCESTER C WD	GCWD 38	01/01/1949	U	U	U	F
070214	395347075065201	395347	750652	GLOUCESTER CITY	GLOUCESTER C WD	GCWD 33	01/01/1938	U	U	U	F
070215	395348075065401	395348	750654	GLOUCESTER CITY	GLOUCESTER C WD	GCWD 37	01/01/1947	U	U	U	F

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U.S. GEOLOGICAL SURVEY TRENTON, NEW JERSEY

SELECTED INFORMATION OF WELLS IN THE GROUND WATER SITE INVENTORY CAMDEN COUNTY

USGS UNIQUE ID	METH ALT MEAS	ALTI- TUD# ACC	WATER LEVEL	DATE LEVEL MEASURED	PRODU- TION LEVEL	DISCHARG	DEPTH FIRST OPENING	BOTTOM LAST OPENING	MIN OPEN DIA	OPEN- ING LENGT	TYPE OPEN -ING	TYPE OPEN MAT	BEDROCK DEPTH	BEDROCK MATERIAL	DEPTH DRILLER LOG
070001	65.00 M	20.00	62.00	09/05/1949	80.00	30.00	183.00	191.00	4.0	8.0	S		0.00		0.00
070002	25.00 M	10.00	40.00	01/01/1953	0.00	50.00	120.00	130.00	4.0	10.0	S		0.00	SAND	0.00
070003	60.00 M	10.00	96.00	02/01/1956	139.00	1045.00	295.00	315.00	0.0	30.0	S		0.00	SAND	0.00
070004	50.00 M	10.00	155.00	07/28/1969	190.00	243.00	253.00	285.00	8.0	32.0	S		0.00		0.00
070005	70.00 M	5.00	111.00	03/28/1968	132.00	130.00	480.00	490.00	6.0	10.0	S		0.00	SAND	0.00
070006	70.00 M	5.00	116.00	03/27/1968	122.00	40.00	350.00	360.00	4.0	10.0	S		0.00	SAND	0.00
070007	60.00 M	20.00	62.00	02/02/1926	97.00	800.00	203.00	264.00	10.0	61.0	S		0.00		0.00
070008	75.00 M	5.00	127.00	08/08/1966	152.00	1016.00	380.00	557.00	12.0	177.0	S		0.00	SAND	0.00
070009	82.00	0.00	113.00	04/21/1965	129.00	45.00	550.00	560.00	6.0	10.0	S		0.00		0.00
070010	45.00 M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
070011	35.00 M	5.00	45.00	10/01/1942	57.00	500.00	111.00	159.00	12.0	48.0	S		0.00	SAND	0.00
070012	35.00 M	5.00	62.00	08/02/1956	133.00	1001.00	331.00	359.00	0.0	28.0	S		0.00	SAND	0.00
070013	31.00 M	10.00	42.00	06/15/1942	60.00	1000.00	111.00	160.00	12.0	49.0	S		0.00	SAND	0.00
070014	155.00 M	10.00	8.00	03/10/1954	0.00	50.00	40.00	60.00	4.0	20.0	S		0.00		0.00
070015	150.00 M	10.00	230.00	07/11/1972	295.00	1078.00	675.00	745.00	12.0	70.0	S		0.00	SAND	0.00
070016	150.00 M	10.00	15.00	10/01/1951	16.00	30.00	68.00	78.00	3.0	10.0	S		0.00	SAND	0.00
070017	160.00 M	10.00	98.00	06/04/1951	161.00	115.00	410.00	440.00	6.0	30.0	S		0.00	SAND	0.00
070018	145.00 M	5.00	155.00	07/15/1955	254.00	1000.00	650.00	713.00	8.0	63.0	S		0.00	SAND	0.00
070019	145.00 M	10.00	0.00	/ /	0.00	1012.00	645.00	713.00	8.0	68.0	S		0.00	SAND	0.00
070020	145.00 M	5.00	73.00	12/01/1923	0.00	155.00	299.00	339.00	6.0	40.0	S		0.00	SAND	0.00
070021	150.00 M	10.00	0.00	/ /	0.00	365.00	67.00	82.00	8.0	15.0	S		0.00	SAND	0.00
070022	147.00 M	5.00	98.00	06/05/1952	236.00	450.00	310.00	360.00	8.0	50.0	S		0.00		0.00
070023	145.00 M	5.00	8.00	02/20/1941	20.00	100.00	35.00	57.00	9.5	22.0	S		0.00		0.00
070024	175.00 M	10.00	21.00	09/20/1952	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
070025	13.00 M	10.00	22.00	08/01/1942	40.00	455.00	120.00	160.00	12.0	40.0	S		0.00	SAND	0.00
070026	20.00 M	10.00	38.00	06/12/1952	70.00	50.00	77.00	85.00	4.0	8.0	S		0.00		0.00
070027	15.00 M	10.00	27.00	05/01/1942	0.00	0.00	247.00	300.00	6.0	53.0	S		0.00		0.00
070028	12.00 M	10.00	17.00	01/01/1956	0.00	0.00	50.00	124.00	16.0	74.0	S		0.00		0.00
070029	12.00 M	10.00	48.00	09/30/1959	89.00	830.00	189.00	220.00	12.0	31.0	S		0.00		0.00
070030	11.41 L	20.00	28.00	04/07/1941	65.00	533.00	87.00	104.00	8.0	17.0	S		0.00	SAND	0.00
070031	12.00	0.00	17.00	01/31/1939	44.00	500.00	98.00	128.00	6.0	30.0	S		0.00		0.00
070032	12.00	0.00	0.00	/ /	0.00	0.00	154.00	205.00	6.0	51.0	S		0.00		0.00
070033	12.00	0.00	35.00	06/26/1944	67.00	731.00	81.00	131.00	6.0	50.0	S		0.00	GRVL	0.00
070034	12.00 M	10.00	28.00	03/05/1941	109.00	830.00	199.00	266.00	10.0	67.0	S		0.00		0.00
070035	12.00	0.00	19.00	08/20/1930	49.00	530.00	74.00	104.00	18.0	30.0	S		0.00		0.00
070036	12.00	0.00	19.00	10/10/1930	43.00	675.00	89.00	119.00	18.0	30.0	S		0.00		0.00
070037	12.00	0.00	0.00	/ /	0.00	700.00	190.00	224.00	10.0	34.0	S		0.00		0.00
070038	12.00	0.00	35.00	05/12/1943	92.00	1005.00	128.00	229.00	12.0	41.0	S		0.00		0.00
070039	21.00 M	10.00	60.00	03/02/1966	81.00	1023.00	123.00	163.00	18.0	40.0	S		0.00	SAND	0.00
070040	21.00 M	10.00	49.00	07/01/1945	96.00	775.00	126.00	165.00	26.0	39.0	S		0.00	SAND	0.00
070041	21.00 M	10.00	29.00	09/10/1928	67.00	1000.00	124.00	164.00	12.0	40.0	S		0.00		0.00
070042	18.00 M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
070043	12.00 M	5.00	24.00	11/19/1951	34.00	350.00	82.00	103.00	8.0	21.0	S		0.00		0.00

SELECTED INFORMATION OF WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
CAMDEN COUNTY

USGS UNIQUE ID	WELL ALT MEAS	ALTITUDE ACC	WATER LEVEL	DATE LEVEL MEASURED	PRODUCTION LEVEL	DISCHARGE	DEPTH FIRST OPENING	BOTTOM LAST OPENING	MIN OPEN DIA	OPENING LENGTH	TYPE OPENING	TYPE OPENING MAT	BEDROCK DEPTH	BEDROCK MATERIAL	DEPTH DRILLER LOG
070173	0.00		0.00	15.00	/ /	0.00	0.00	0.00	0.0	0.0			0.00		0.00
070174	21.00 M	10.00	41.00	01/01/1955	77.00	100.00	143.00	164.00	6.0	21.0	S		0.00	SAND	164.00
070175	25.00 M	10.00	54.00	10/24/1949	98.00	1023.00	266.00	306.00	12.0	40.0	S		0.00	SAND	305.00
070176	12.00 M	10.00	57.00	06/02/1960	108.00	1000.00	248.00	278.00	12.0	30.0	S		0.00	SAND	319.00
070177	9.00 M	10.00	32.00	07/14/1942	69.00	760.00	274.00	304.00	10.0	30.0	S		0.00	SAND	314.00
070178	15.00 M	10.00	57.00	06/02/1960	120.00	1000.00	257.00	287.00	12.0	30.0	S		0.00	SAND	0.00
070179	10.00 M	5.00	43.00	02/06/1956	114.00	1000.00	248.00	278.00	12.0	30.0	S		0.00	SAND	320.00
070180	193.00 M	5.00	130.00	08/01/1960	146.00	102.00	280.00	310.00	8.0	30.0	S		0.00		0.00
070181	191.00 M	5.00	118.00	04/08/1959	164.00	55.00	0.00	0.00	0.0	0.0			0.00		0.00
070182	135.00 M	5.00	42.00	11/01/1952	65.00	60.00	0.00	0.00	0.0	0.0			0.00		0.00
070183	70.00 M	10.00	123.00	07/01/1972	178.00	2000.00	923.00	1011.00	12.0	88.0	S		0.00		1044.00
070184	70.00 M	10.00	115.00	03/04/1969	145.00	43.00	1091.00	1091.00	3.0	10.0	S		0.00	SAND	1158.00
070185	70.00 M	10.00	125.00	01/25/1969	0.00	0.00	940.00	950.00	3.0	10.0	S		0.00	SAND	0.00
070186	70.00 M	10.00	119.00	02/04/1969	128.00	35.00	0.00	0.00	0.0	0.0			0.00	SAND	0.00
070187	70.00 M	10.00	4.00	07/24/1951	6.00	50.00	0.00	0.00	0.0	0.0			0.00	SAND	0.00
070188	65.00 M	20.00	123.00	05/22/1972	178.00	2000.00	934.00	986.00	12.0	52.0	S		0.00		0.00
070189	65.00	0.00	123.00	04/01/1972	0.00	0.00	1022.00	1097.00	12.0	75.0	S		0.00		1162.00
070190	93.00 M	5.00	0.00	/ /	0.00	150.00	0.00	0.00	0.0	0.0			0.00		0.00
070191	93.00	0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
070192	24.00 M	10.00	49.00	03/13/1958	95.00	500.00	161.00	185.00	9.5	24.0	S		0.00		208.00
070193	20.00 M	10.00	56.00	07/31/1952	76.00	85.00	59.00	71.00	9.0	12.0	S		0.00		73.00
070194	8.00 M	10.00	57.00	/ /	92.00	600.00	249.00	279.00	10.0	30.0	S		0.00		285.00
070195	10.00 M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
070196	6.00 M	10.00	49.00	07/12/1954	78.00	600.00	245.00	275.00	10.0	30.0	S		0.00	SAND	299.00
070197	8.00 M	10.00	64.00	12/01/1957	88.00	600.00	223.00	253.00	10.0	30.0	S		0.00	SAND	275.00
070198	8.00 M	10.00	60.00	03/08/1973	109.00	626.00	235.00	260.00	10.0	25.0	S		0.00		275.00
070199	5.00 M	10.00	34.00	01/01/1945	59.00	600.00	0.00	0.00	0.0	0.0			0.00		0.00
070200	25.00 M	10.00	33.00	04/01/1953	0.00	25.00	102.00	112.00	3.0	10.0	S		0.00	SAND	112.00
070201	5.00 M	10.00	38.00	04/28/1948	83.00	560.00	246.00	266.00	10.0	20.0	S		0.00	SAND	271.00
070202	8.00 M	10.00	57.00	09/26/1952	83.00	530.00	245.00	265.00	10.0	20.0	S		0.00	SAND	275.00
070203	6.00 M	10.00	77.00	03/21/1951	101.00	578.00	221.00	251.00	10.0	30.0	S		0.00	SAND	257.00
070204	5.00 M	10.00	55.00	03/18/1953	77.00	566.00	235.00	260.00	10.0	25.0	S		0.00	SAND	275.00
070205	7.00 M	10.00	0.00	/ /	0.00	0.00	230.00	250.00	10.0	20.0	S		0.00	SAND	0.00
070206	9.00 M	10.00	0.00	/ /	0.00	0.00	231.00	251.00	10.0	20.0	S		0.00	SAND	0.00
070207	9.00 M	10.00	0.00	/ /	0.00	0.00	230.00	250.00	10.0	20.0	S		0.00	SAND	0.00
070208	0.00	0.00	55.00	07/30/1962	65.00	200.00	205.00	240.00	10.0	35.0	S		0.00		242.00
070209	0.00	0.00	34.00	10/25/1949	55.00	355.00	0.00	0.00	0.0	0.0			0.00		0.00
070210	15.00 M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
070211	11.00 M	10.00	33.00	04/01/1953	65.00	200.00	141.00	171.00	10.0	30.0	S		0.00	SAND	171.00
070212	11.00 M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
070213	10.00 M	50.00	36.00	/ /	0.00	300.00	279.00	300.00	8.0	21.0	S		0.00	SAND	300.00
070214	14.00 M	10.00	21.00	03/01/1938	73.00	875.00	220.00	240.00	12.0	20.0	S		0.00	SAND	289.00
070215	5.00 M	10.00	0.00	/ /	0.00	70.00	0.00	0.00	0.0	0.0			0.00	SAND	0.00

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Started: 86-02-20.15:16:00.Thu on: PR1 by: MT

U.S. GEOLOGICAL SURVEY TRENTON, NEW JERSEY

2/20/86

SELECTED INFORMATION FROM WELLS IN THE GROUND WATER SITE INVENTORY DATABASE CAMDEN COUNTY

USGS UNIQUE ID	WELL DEPTH	AQUIFER CODE	DATA RELIA- BILITY	HYDRD- LOGIC UNIT	DRILLER	MIN CASING DIA	SITE TYPE	NJDEP PERMIT NUMBER	NJDEP GRID NUMBER	WATER ALLDC NUMBE	STAN INDUS USE	LIFT TYPE	TIME PERIOD PUMPED	SPECIFIC CAPACITY	ALTITUDE WATER LEVEL	MU CI CO
070001	191.00	211MRPA	U	02040202	Stafford, RB	4.0 W		3100075	3112132				0.0	1.67	3.00	1
070002	130.00	211MRPA	U	02040202	Robbins, HJ	4.0 W		3102492	3112529	2189P			6.0	0.00	-15.00	1
070003	315.00	211MRPA	U	02040202		12.0 W		3105360	3112523	00775		T	8.0	24.30	-36.00	3
070004	285.00	211MRPA	U	02040202	Schultes, AC	8.0 W		3105216	3112281	01404			6.0	6.94	-105.00	3
070005	470.00	211MRPA	C	02040202	Schultes, AC	6.0 W							24.0	6.19	-41.00	3
070006	360.00	211MRPA	U	02040202	Schultes, AC	4.0 W					00207 4941	S	60.0	6.67	-46.00	3
070007	264.00	211MRPA	U	02040202	Artesian Co	12.0 W		3104769		05223 4941		T	3.0	32.00	-2.00	3
070008	557.00	211MRPA	C	02040202	Schultes, AC	0.0 W		3104804	3112418	05223			24.0	40.64	-52.00	4
070009	560.00	211MRPA	U	02040202	Schultes, AC	6.0 W							22.0	2.81	-31.00	4
070010	32.00	211EGLS	U	02040202		0.0 W							0.0	0.00	0.00	4
070011	159.00	211MRPA	C	02040202	Schultes, AC	12.0 W		3102687	3111394	05223 4941		T	24.0	41.67	-10.00	4
070012	359.00	211MRPA	C	02040202	Schultes, AC	8.0 W				05223 4941		T	8.0	14.10	-27.00	4
070013	160.00	211MRPA	C	02040202	Schultes, AC	0.0 W				05223 4941		T	36.0	55.56	-11.00	4
070014	60.00	112PLCC	U	02040302	Robbins, HJ	4.0 W							5.0	0.00	147.00	5
070015	745.00	211MRPA	C	02040302	Layne NY Co	12.0 W		3106208	3123365	05044 4941		T	0.0	16.58	-80.00	5
070016	78.00	112PLCC	U	02040302		3.0 W							3.0	39.00	145.00	5
070017	440.00	211MLRW	C	02040301	Layne NY Co	6.0 W		3100179	3123316	2191P		T	8.0	1.83	62.00	5
070018	713.00	211MRPA	C	02040302	Schultes, AC	8.0 W		3102079	3123235	05044 4941		T	8.0	10.10	-10.00	5
070019	713.00	211MRPA	C	02040302	Schultes, AC	8.0 W		3105173	3123235	05044 4941			8.0	0.00	0.00	5
070020	339.00	211MLRW	C	02040302		6.0 W				05044 4941			0.0	0.00	0.00	5
070021	82.00	112PLCC	C	02040302	Layne NY Co	8.0 W		3100513	3123235	05044 4941			8.0	3.26	49.00	5
070022	360.00	211MLRW	C	02040302	Layne NY Co	12.0 W				05044 4941			1.0	8.33	-8.00	5
070023	57.00	121CKKD	C	02040302	Robbins, HJ	10.0 W						J	0.0	0.00	154.00	6
070024	40.00	112PLCC	U	02040202		0.0 W							8.0	25.28	-9.00	7
070025	160.00	211MRPA	C	02040202		12.0 W							8.0	1.56	-18.00	7
070026	85.00	211MRPA	U	02040202	Artesian Co	4.0 W			3102247				0.0	0.00	-12.00	8
070027	300.00	211MRPA	U	02040202	Layne NY Co	6.0 W							0.0	0.00	-5.00	8
070028	124.00	211MRPA	U	02040202	Lauman Co	16.0 W		3103905		A317			24.0	20.24	-36.00	8
070029	220.00	211MRPA	U	02040202	Artesian Co	12.0 W			3101957				0.0	14.41	-16.59	8
070030	104.00	211MRPA	U	02040202	Artesian Co	0.0 W			3101957				0.0	22.22	-5.00	8
070031	128.00	211MRPA	C	02040202	Artesian Co	6.0 W			3101957				0.0	0.00	0.00	8
070032	205.00	211MRPA	U	02040202	Artesian Co	6.0 W			3101957				0.0	22.84	-23.00	8
070033	131.00	211MRPA	U	02040202	Artesian Co	6.0 W			3101957				0.0	10.25	-16.00	8
070034	266.00	211MRPA	U	02040202	Artesian Co	10.0 W			3101957			C	0.0	21.00	-7.00	8
070035	104.00	211MRPA	U	02040202	Layne NY Co	18.0 W			3101957			C	0.0	28.13	-7.00	8
070036	119.00	211MRPA	U	02040202	Layne NY Co	18.0 W			3101957				0.0	0.00	0.00	8
070037	224.00	211MRPA	U	02040202	Layne NY Co	10.0 W			3101957				0.0	17.63	-23.00	8
070038	229.00	211MRPA	C	02040202	Artesian Co	12.0 W			3101954			T	8.0	48.71	-39.00	8
070039	163.00	211MRPA	C	02040202	Layne NY Co	18.0 W				00297 4941			0.0	16.49	-28.00	8
070040	165.00	211MRPA	C	02040202	Layne NY Co	26.0 W			3101959		4941		0.0	26.32	-8.00	8
070041	164.00	211MRPA	C	02040202	Layne NY Co	18.0 W			3101959		4941		0.0	0.00	0.00	8
070042	180.00	211MRPA	C	02040202		0.0 W						A	8.0	35.00	-12.00	8
070043	103.00	211MRPA	U	02040202	Rulen & Cook	8.0 W		3100290	3101943	2148P						

SELECTED INFORMATION FROM WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
CAMDEN COUNTY

USGS UNIQUE ID	WELL DEPTH	AQUIFER CODE	DATA RELIA- BILITY	HYDRO- LOGIC UNIT	DRILLER	MIN CASING DIA	SITE TYPE	NJDEF PERMIT NUMBER	NJDEF GRID NUMBER	WATER ALLDC NUMBE	STAN INDUS USE	LIFT TYPE	TIME PERIOD PUMPED	SPECIFIC CAPACITY	ALTITUDE WATER LEVEL	MU CI CO
070173	306.00	211MRPA	C	02040202		0.0	W			05209			0.0	0.00	-15.00	12
070174	164.00	211MRPA	U	02040202	Schultes, AC	6.0	W	3101703	3102154				68.0	2.63	-20.00	12
070175	306.00	211MRPA	C	02040202	Layne NY Co	12.0	W	3100079		05209	4941		8.0	23.25	-29.00	12
070176	278.00	211MRPA	C	02040202	Layne NY Co	12.0	W	3104053	3102138	05209	4941		8.0	19.61	-45.00	12
070177	304.00	211MRPA	U	02040202	Layne NY Co	10.0	W			05209	4941	T	8.0	20.54	-23.00	12
070178	287.00	211MRPA	C	02040202	Layne NY Co	12.0	W	3104054		05209	4941		8.0	15.87	-42.00	12
070179	278.00	211MRPA	C	02040202	Layne NY Co	12.0	W			05209	4941		8.0	14.08	-33.00	12
070180	310.00	211MLRW	C	02040202	Artesian Co	8.0	W						24.0	6.38	63.00	13
070181	290.00	211MLRW	C	02040202	Artesian Co	0.0	W						0.0	1.20	73.00	13
070182	150.00	125VNCN	C	02040202		0.0	W					J	0.0	2.61	93.00	13
070183	1011.00	211MRPA	U	02040202	Schultes, AC	12.0	W	3105951		01605	4941		16.0	36.36	-53.00	13
070184	1091.00	211MRPA	C	02040202	Schultes, AC	4.0	W	3105315		01405			2.0	1.43	-45.00	13
070185	950.00	211MRPA	C	02040202	Schultes, AC	3.0	W						0.0	0.00	-55.00	13
070186	690.00	211MRPA	C	02040202	Schultes, AC	0.0	W					S	0.0	3.89	-49.00	13
070187	108.00	211MLRW	C	02040202	Robbins, HJ	0.0	W						6.0	25.00	66.00	13
070188	986.00	211MRPA	C	02040202	Schultes, AC	12.0	W	3105950			4941		24.0	36.36	-58.00	13
070189	1097.00	211MRPA	U	02040202	Schultes, AC	12.0	W	3105949			4941		0.0	0.00	-58.00	13
070190	165.00	211MLRW	C	02040202	Layne NY Co	0.0	W					T	0.0	0.00	0.00	13
070191	150.00	211MLRW	C	02040202		0.0	W					Z	0.0	0.00	0.00	13
070192	185.00	211MRPA	C	02040202	Artesian Co	10.0	W	3103429	3111364	05010	4941		48.0	10.87	-25.00	14
070193	71.00	211MRPA	C	02040202	Haines & Co	8.0	W	3100560	3111356		4941		8.0	4.25	-36.00	14
070194	279.00	211MRPA	C	02040202	Layne NY Co	10.0	W	3103402	3111345	2165P		T	8.0	17.14	-49.00	14
070195	175.00	211MRPA	C	02040202		0.0	W	3104454	3111341	2165P			0.0	0.00	0.00	14
070196	275.00	211MRPA	C	02040202	Layne NY Co	10.0	W	3101210	3111341	2165P		T	8.0	20.69	-43.00	14
070197	253.00	211MRPA	C	02040202	Layne NY Co	10.0	W	3103401	3111263	2165P		T	8.0	25.00	-56.00	14
070198	260.00	211MRPA	U	02040202	Layne NY Co	10.0	W	3106642	3111341	2165P		T	0.0	21.59	-72.00	14
070199	250.00	211MRPA	U	02040202		0.0	W						0.0	24.00	-29.00	14
070200	112.00	211MRPA	U	02040202	Capel, Fred	4.0	W	3100886	3111263				8.0	0.00	-8.00	14
070201	266.00	211MRPA	U	02040202	Layne NY Co	10.0	W	3100019	3111341	00009			8.0	12.44	-33.00	14
070202	265.00	211MRPA	U	02040202	Layne NY Co	16.0	W	3100673	3111341	00057			8.0	20.38	-49.00	14
070203	251.00	211MRPA	U	02040202	Layne NY Co	10.0	W	3100142	3111342	00030			8.0	24.08	-71.00	14
070204	260.00	211MRPA	C	02040202	Layne NY Co	10.0	W	3100761	3111318	00057		T	0.0	25.73	-50.00	14
070205	250.00	211MRPA	U	02040202	Layne NY Co	10.0	W		3111318				0.0	0.00	0.00	14
070206	251.00	211MRPA	U	02040202	Layne NY Co	10.0	W		3111313				0.0	0.00	0.00	14
070207	250.00	211MRPA	C	02040202	Layne NY Co	10.0	W		3111318				0.0	0.00	0.00	14
070208	240.00	211MRPA	U	02040202	Weich, E	10.0	W	3104486		A3150		S	8.0	20.00	-55.00	14
070209	112.00	211MRPA	U	02040202	Stephens, F	0.0	W	3100085	3111316	00019			2.0	16.90	-34.00	14
070210	306.00	211MRPA	C	02040202	McKee, CJ	0.0	W	3105242	3111326	05010	4941		0.0	0.00	0.00	14
070211	171.00	211MRPA	U	02040202	Nicholas, AJ	10.0	W		3111325	05010			0.0	6.25	-22.00	14
070212	175.00	211MRPA	C	02040202		0.0	W			05010			0.0	0.00	0.00	14
070213	300.00	211MRPA	C	02040202	Artesian Co	8.0	W		3111325	05010			24.0	0.00	-26.00	14
070214	240.00	211MRPA	U	02040202	Layne NY Co	12.0	W		3111325	05010			0.0	16.83	-7.00	14
070215	125.00	211MRPA	C	02040202		0.0	W			05010			0.0	0.00	0.00	14

REFERENCE NO. 13

USGS WELL INVENTORY

(WELLS > 75 gpm)

GLOUCESTER COUNTY

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File last modified: 86-02-20.15:33:12.Thu

Spooled: 86-02-20.15:37:24.Thu [Spooler rev 19.4.5]
Started: 86-02-20.15:58:36.Thu on: PR1 by: MT

U.S. GEOLOGICAL SURVEY TRENTON, NEW JERSEY

SELECTED INFORMATION OF WELLS FROM THE GROUND WATER SITE INVENTORY DATABASE
GLOUCESTER COUNTY

USGS UNIQUE ID	SITE ID	LATITU	LONGTU	MUNICIPALITY	SITE OWNER	LOCAL IDENTIFIER	DATE COMPLETED	USE OF SITE	ORIG WATER USE	CURR WATER USE	LAT LON ACC
150001	393912075052201	393913	750517	CLAYTON BORO	CLAYTON W D	CWD 3	11/09/1956	W	P	P	S
150002	393914075051901	393914	750519	CLAYTON BORO	CLAYTON W D	CWD 2	08/04/1942	W	P	P	M
150003	394013075055801	394015	750559	CLAYTON BORO	CLAYTON W D	4-1973	01/12/1973	W	P	P	S
150004	394619075072601	394619	750726	DEPTFORD TWP	MORRIS, H F	1	09/05/1950	W	H	H	F
150005	394627075081301	394627	750813	DEPTFORD TWP	WOODBURY W D	SEWELL 1	01/01/1934	W	P	P	S
150006	394627075081302	394627	750813	DEPTFORD TWP	WOODBURY W D	SEWELL 1A	11/07/1967	W	P	P	S
150007	394628075081301	394628	750813	DEPTFORD TWP	WOODBURY W D	SEWELL 2	01/01/1937	Z	P	U	S
150008	394628075081303	394628	750813	DEPTFORD TWP	WOODBURY W D	SEWELL 2A	03/28/1973	W	P	P	S
150009	394746075051101	394746	750511	DEPTFORD TWP	DEPTFORD T MUA	DTMUA 5	03/31/1971	W	P	P	S
150011	394805075091301	394811	750914	DEPTFORD TWP	DEPTFORD T MUA	DTMUA 2	01/14/1959	W	P	P	S
150012	394816075073001	394816	750730	DEPTFORD TWP	NEW SHARON F C		12/31/1953	W	D	D	S
150013	394821075053001	394821	750530	DEPTFORD TWP	GREER, ROBERT A		10/21/1955	W	H	H	S
150014	394827075075801	394827	750758	DEPTFORD TWP	THOMPSON, MARION		04/15/1953	W	H	H	S
150015	394833075073001	394833	750730	DEPTFORD TWP	LAFFERTY, WM	1	11/30/1948	W	H	H	F
150016	394839075091101	394839	750911	DEPTFORD TWP	DEPTFORD T MUA	DTMUA 1	12/27/1955	W	P	P	S
150017	394934075065301	394934	750653	DEPTFORD TWP	DEPTFORD T MUA	DTMUA 3	09/07/1955	Z	P	U	S
150018	394934075065302	394934	750653	DEPTFORD TWP	DEPTFORD T MUA	DTMUA TEST 3-A	01/01/1973	T	U	U	S
150019	394947075073101	394947	750731	DEPTFORD TWP	PINTOZZI, WM		08/05/1968	W	H	H	S
150020	394950075062601	394950	750626	DEPTFORD TWP	LLOYD, LEROY		10/07/1952	W	H	H	S
150021	395003075072201	395003	750722	DEPTFORD TWP	POTTS, WALTER		04/04/1949	W	H	H	S
150022	395026075073501	395026	750735	DEPTFORD TWP	N&P SUPER FARMS	1	06/09/1949	W	S	S	F
150023	395029075074701	395029	750747	DEPTFORD TWP	CATHOLIC CHARIT	CHILD CARE 1	07/31/1967	W	T	T	M
150024	395115075070601	395115	750706	DEPTFORD TWP	DEPTFORD T MUA	DTMUA 4	01/01/1971	W	P	P	S
150025	394622075131701	394622	751317	E GREENWICH TWP	CARTER, HAROLD	CARTER 1	01/01/1936	W	H	H	S
150026	394651075151001	394651	751510	E GREENWICH TWP	THOMPSON, EDGAR	1	02/08/1952	W	H	H	F
150027	394751075124801	394751	751248	E GREENWICH TWP	E GREENWICH W D	TEST FOR 3	11/30/1973	Z	U	U	S
150028	394755075132701	394755	751327	E GREENWICH TWP	E GREENWICH W D	EGWD 2	02/17/1956	W	P	P	S
150029	394757075133401	394757	751334	E GREENWICH TWP	E GREENWICH W D	EGWD 1	01/01/1931	W	P	P	S
150030	393952075085901	393952	750859	ELK TWP	HUGHES, WILSON J		10/14/1964	W	I	I	M
150031	393958075123701	394001	751234	ELK TWP	MOOD, RICHARD J	1	01/01/1954	W	I	I	F
150032	394018075081401	394018	750814	ELK TWP	SEARLE, ROBERT E		03/05/1954	W	H	H	F
150033	394018075085501	394018	750855	ELK TWP	HUGHES, EARL	2-1964	10/19/1964	W	I	I	F
150034	394019075085501	394019	750855	ELK TWP	HUGHES, EARL	1-1964	10/15/1964	W	I	I	F
150035	394022075090201	394022	750902	ELK TWP	HUGHES, WILSON J	2	05/25/1965	W	I	I	F
150037	394055075110801	394055	751108	ELK TWP	POWELL, HENRY	1	01/01/1949	W	H	H	S
150038	394057075106701	394057	751007	ELK TWP	GERLACK, LOUIS J	1	11/23/1951	W	H	H	F
150039	393148074582201	393148	745822	FRANKLIN TWP	CIFALOGGIO, S	1	01/01/1967	W	I	I	F
150041	393149074575202	393149	745752	FRANKLIN TWP	SCAPELLATO BROS	SCAPELLATO 2	/ /	W	I	I	S
150042	393225074573201	393225	745732	FRANKLIN TWP	UNITD PLTRY CD	3-1966	01/01/1966	W	N	N	F
150043	393253074590801	393253	745908	FRANKLIN TWP	DANKO, JOHN	1	04/15/1970	W	I	I	M
150044	393304074594801	393304	745948	FRANKLIN TWP	FABRIZIO, A	FABRIZIO	04/03/1950	W	I	I	F
150045	393346075012701	393346	750127	FRANKLIN TWP	TIRELLI, MICHAEL	1-1969	04/24/1969	W	I	I	F
150046	393410074563001	393410	745630	FRANKLIN TWP	ZUCCARINI, LENO		05/09/1955	W	H	H	F

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U.S. GEOLOGICAL SURVEY TRENTON, NEW JERSEY

SELECTED INFORMATION OF WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
GLOUCESTER COUNTY

USGS UNIQUE ID	ALTITUDE MEAS	METH ALT MEAS	ALTITUDE ACC	WATER LEVEL	DATE LEVEL MEASURED	PRODUCTION LEVEL	DISCHARGE	DEPTH FIRST OPENING	BOTTOM LAST OPENING	MIN OPEN DIA	OPEN- ING LENGT	TYPE OPEN- ING	TYPE OPEN MAT	BEDROCK DEPTH	BEDROCK MATERIAL	DEPTH DRILLER LOG
150001	133.00	M	10.00	151.00	11/09/1955	241.00	708.00	745.00	800.00	8.0	54.0	S		0.00	SAND	0.00
150002	133.00	M	10.00	26.00	08/27/1942	66.00	450.00	83.00	105.00	10.0	22.0	S		0.00		113.00
150003	140.00	M	10.00	190.00	01/22/1973	250.00	1007.00	670.00	740.00	12.0	70.0	S		0.00		0.00
150004	60.00	M	10.00	100.00	09/05/1950	0.00	75.00	342.00	352.00	4.0	10.0	S		0.00		0.00
150005	20.00		0.00	0.00	/ /	0.00	1257.00	0.00	0.00	0.0	0.0			0.00		0.00
150006	20.00	M	10.00	60.00	11/07/1957	85.00	1150.00	243.00	308.00	12.0	45.0	S		0.00	SAND	0.00
150007	65.00	M	20.00	23.00	10/01/1937	41.00	1100.00	257.00	317.00	16.0	50.0	S		0.00		0.00
150008	21.00	M	20.00	63.00	03/25/1973	96.00	1023.00	244.00	307.00	12.0	63.0	S		0.00		313.00
150009	78.00	A	5.00	118.00	03/31/1971	170.00	735.00	414.00	447.00	12.0	33.0	S		0.00		0.00
150011	58.00	M	10.00	70.00	01/14/1958	129.00	1018.00	255.00	281.00	12.0	26.0	S		0.00	SAND	0.00
150012	82.00	M	10.00	10.00	12/31/1953	0.00	25.00	30.00	65.00	4.0	35.0	S		0.00	SAND	0.00
150013	44.00	M	10.00	30.00	10/24/1955	40.00	30.00	120.00	132.00	4.0	12.0	S		0.00	SAND	0.00
150014	102.00	M	10.00	23.00	04/15/1953	0.00	25.00	83.00	107.00	4.0	24.0	S		0.00	SAND	0.00
150015	80.00	M	10.00	90.00	11/30/1948	100.00	100.00	287.00	306.00	6.0	19.0	S		0.00		0.00
150016	70.00	M	10.00	73.00	12/27/1955	85.00	503.00	252.00	273.00	12.0	21.0	S		0.00	SAND	400.00
150017	90.00	M	10.00	110.00	09/07/1955	131.00	350.00	334.00	355.00	10.0	21.0	S		0.00		355.00
150018	90.00	M	10.00	0.00	11/01/1973	38.00	66.00	483.00	542.00	6.0	59.0	S		0.00		606.00
150019	45.00		0.00	80.00	08/05/1958	100.00	20.00	110.00	120.00	4.0	10.0	S		0.00	SAND	0.00
150020	55.00	M	10.00	4.00	10/07/1952	0.00	25.00	47.00	55.00	3.0	8.0	S		0.00	SAND	0.00
150021	60.00	M	10.00	50.00	04/04/1949	60.00	50.00	120.00	130.00	4.0	10.0	S		0.00	SAND	0.00
150022	40.00	M	10.00	50.00	06/09/1949	70.00	300.00	200.00	219.00	6.0	19.0	S		0.00		0.00
150023	37.00	M	10.00	68.00	07/31/1957	82.00	100.00	215.00	236.00	6.0	21.0	S		0.00		294.00
150024	40.00	M	5.00	80.00	05/01/1971	100.00	752.00	282.00	345.00	12.0	63.0	S		0.00		380.00
150025	80.00		0.00	11.00	/ /	21.00	20.00	31.00	36.00	4.0	5.0	S		0.00		0.00
150026	70.00	M	10.00	80.00	02/08/1952	86.00	75.00	173.00	183.00	4.0	10.0	S		0.00		0.00
150027	40.00	M	20.00	66.00	11/30/1973	0.00	0.00	212.00	242.00	6.0	30.0	S		0.00		0.00
150028	70.00	M	20.00	77.00	02/17/1956	97.00	536.00	191.00	216.00	10.0	25.0	S		0.00	SAND	223.00
150029	65.00	M	10.00	65.00	08/01/1931	98.00	410.00	169.00	200.00	4.0	31.0	S		0.00	SAND	0.00
150030	140.00	M	10.00	9.00	10/14/1964	18.00	120.00	8.00	64.00	8.0	56.0	S		0.00		0.00
150031	125.00	M	20.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
150032	145.00	M	10.00	18.00	03/06/1954	0.00	75.00	51.00	58.00	3.0	7.0	S		0.00		0.00
150033	140.00	M	10.00	9.00	10/19/1964	11.00	60.00	15.00	55.00	4.0	40.0	S		0.00		60.00
150034	140.00	M	10.00	5.00	10/16/1964	11.00	100.00	10.00	50.00	8.0	40.0	S		0.00		55.00
150035	140.00	M	10.00	10.00	05/25/1965	11.00	50.00	20.00	60.00	8.0	40.0	S		0.00		63.00
150037	100.00	M	10.00	26.00	/ /	0.00	50.00	220.00	230.00	4.0	10.0	S		0.00		230.00
150038	135.00	M	10.00	27.00	11/23/1951	0.00	12.00	41.00	45.00	4.0	4.0	S		0.00		0.00
150039	110.00	M	10.00	8.00	03/01/1967	13.00	87.00	75.00	123.00	6.0	48.0	S		0.00		0.00
150041	0.00		0.00	0.00	/ /	0.00	225.00	0.00	0.00	0.0	0.0			0.00		0.00
150042	120.00	M	10.00	29.00	01/01/1966	31.00	15.00	106.00	132.00	6.0	26.0	S		0.00		132.00
150043	115.00	M	10.00	13.00	04/15/1970	18.00	60.00	18.00	118.00	6.0	100.0	S		0.00		120.00
150044	115.00	M	10.00	16.00	04/04/1950	43.00	300.00	77.00	127.00	4.0	50.0	S		0.00		0.00
150045	105.00	M	10.00	9.00	04/24/1969	26.00	73.00	42.00	123.00	4.0	81.0	S		0.00		136.00
150046	115.00	M	10.00	22.00	05/09/1955	23.00	20.00	0.00	0.00	0.0	0.0			0.00		0.00

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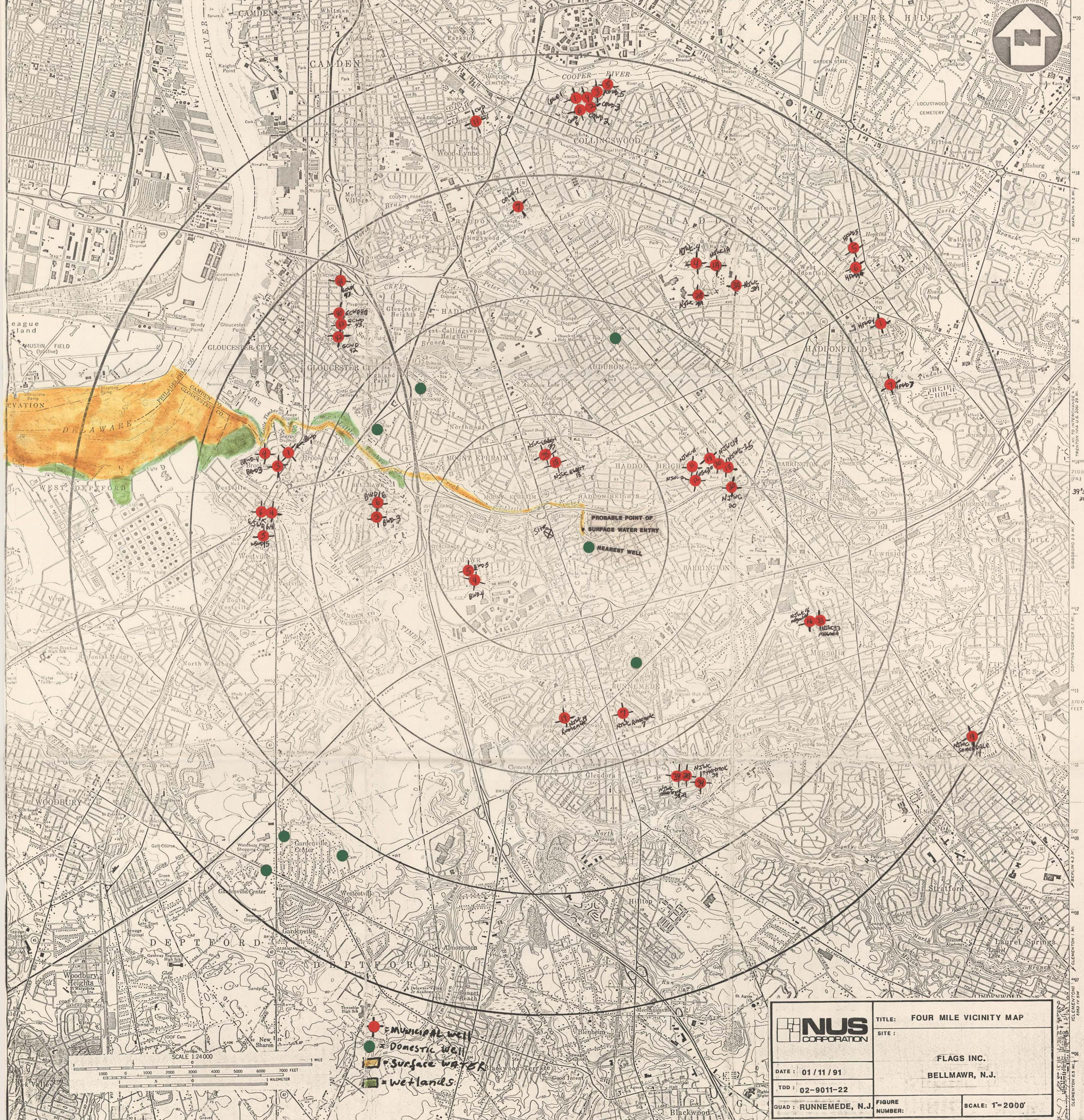
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U.S. GEOLOGICAL SURVEY TRENTON, NEW JERSEY

SELECTED INFORMATION FROM WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
GLOUCESTER COUNTY

USGS UNIQUE ID	WELL DEPTH	AQUIFER CODE	DATA RELI- BILITY	HYDRO- LOGIC UNIT	DRILLER	MIN CASING DIA	SITE TYPE	NUDEF PERMIT NUMBER	NUDEF GRID NUMBER	WATER ALLOC NUMBE	STAN INDUS USE	LIFT TYPE	TIME PERIOD PUMPED	SPECIFIC CAPACITY	ALTITUDE WATER LEVEL	MU CI CO
150001	800.00	211MRPA	C	02040206	Schultes, AC	8.0	W	3102989		05224	4941	T	8.0	7.87	-18.00	1
150002	105.00	121CKKD	U	02040206	Rulen & Cook	10.0	W			05224	4941	T	9.0	11.25	107.00	1
150003	740.00	211MRPA	C	02040206	Layne NY Co	12.0	W	3106676		05224	4941	T	0.0	16.78	-50.00	1
150004	352.00	211MRPA	U	02040202	Robbins, HJ	4.0	W					J	10.0	0.00	-40.00	2
150005	314.00	211MRPA	C	02040202	Rulen & Cook	0.0	W				4941		0.0	0.00	0.00	2
150006	308.00	211MRPA	C	02040202	Schultes, AC	12.0	W	3105174	3121268	00435	4941		8.0	46.00	-40.00	2
150007	317.00	211MRPA	C	02040202	Ridpath & Co	16.0	W				4941		0.0	61.11	42.00	2
150008	307.00	211MRPA	C	02040202	Schultes, AC	12.0	W				4941		8.0	31.00	-42.00	2
150009	447.00	211MRPA	C	02040202	Schultes, AC	12.0	W	3105514			4941		12.0	14.13	-40.00	2
150011	281.00	211MRPA	C	02040202	Schultes, AC	12.0	W	3103462		00874	4941		8.0	17.25	-12.00	2
150012	65.00	211MLRW	C	02040202	Capel, Fred	4.0	W						2.0	0.00	72.00	2
150013	132.00	211EGLS	C	02040202	Robbins, HJ	4.0	W						4.0	3.00	14.00	2
150014	107.00	211MLRW	C	02040202	Capel, Fred	4.0	W					J	8.0	0.00	79.00	2
150015	306.00	211MRPA	C	02040202	Schultes, AC	6.0	W					T	8.0	10.00	-10.00	2
150016	273.00	211MRPA	C	02040202	Schultes, AC	12.0	W	3102418	3111881	00874	4941		8.0	41.92	-3.00	2
150017	355.00	211MRPA	C	02040202	Schultes, AC	10.0	W	3102118	3111925	00854	4941	T	3.0	16.67	-20.00	2
150018	542.00	211MRPA	C	02040202	Schultes, AC	6.0	W						8.0	0.00	90.00	2
150019	120.00	211MLRW	U	02040202	A A & M Co	4.0	W					S	1.0	1.00	-35.00	2
150020	55.00	211MLRW	U	02040202	Capel, Fred	3.0	W						5.0	0.00	51.00	2
150021	130.00	211MCVL	U	02040202	Robbins, HJ	4.0	W						4.0	5.00	10.00	2
150022	219.00	211MRPA	U	02040202	Schultes, AC	6.0	W					T	8.0	15.00	-10.00	2
150023	236.00	211MRPA	U	02040202	Schultes, AC	6.0	W	3105145	3111671				8.0	7.14	-31.00	2
150024	345.00	211MRPA	C	02040202	Schultes, AC	12.0	W				4941		12.0	37.60	-40.00	2
150025	36.00	211MLRW	C	02040202	Haines & Co	4.0	W						0.0	2.00	69.00	3
150026	183.00	211MRPA	U	02040202	Schultes, AC	4.0	W					J	8.0	12.50	-10.00	3
150027	242.00	211MRPA	C	02040202	Schultes, AC	6.0	W						0.0	0.00	-26.00	3
150028	216.00	211MRPA	C	02040202	Layne NY Co	16.0	W	3000432	3025113	00831	4941	T	12.0	26.80	-7.00	3
150029	200.00	211MRPA	C	02040202	Layne NY Co	4.0	W				4941		8.0	12.42	0.00	3
150030	64.00	121CKKD	U	02040206	Delmarva Co	8.0	W	3104760		00265			2.0	13.33	131.00	4
150031	285.00	211MLRW	C	02040206		0.0	W						0.0	0.00	0.00	4
150032	58.00	121CKKD	U	02040206	Capel, Fred	3.0	W						2.0	0.00	127.00	4
150033	55.00	121CKKD	U	02040206	Delmarva Co	4.0	W	3104759					2.0	30.00	131.00	4
150034	50.00	121CKKD	U	02040206	Delmarva Co	8.0	W	3104758					2.0	16.67	135.00	4
150035	60.00	121CKKD	U	02040206	Delmarva Co	8.0	W	3104807					2.0	50.00	130.00	4
150037	230.00	211MLRW	C	02040202	Robbins, HJ	4.0	W	3100093	3131143			J	0.0	0.00	74.00	4
150038	45.00	121CKKD	U	02040202	Haines & Co	4.0	W					J	0.0	0.00	108.00	4
150039	123.00	121CKKD	U	02040206	Skinner, Van	8.0	W	3560933		00659		T	1.0	17.40	102.00	5
150041	68.00	121CKKD	U	02040206		0.0	W						0.0	0.00	0.00	5
150042	132.00	121CKKD	U	02040206	Skinner, Van	6.0	W	3104922	3143671			T	1.0	7.50	91.00	5
150043	118.00	121CKKD	U	02040206	Delmarva Co	6.0	W	3105423		00821			3.0	12.00	102.00	5
150044	127.00	121CKKD	U	02040206	Hauser, Gus	4.0	W						3.0	11.11	99.00	5
150045	123.00	121CKKD	U	02040206	Skinner, Van	4.0	W	3105355		00172		C	0.2	4.29	96.00	5
150046	96.00	121CKKD	U	02040302	Skypala, R	0.0	W					C	1.0	20.00	93.00	5

REFERENCE NO. 14



		TITLE: FOUR MILE VICINITY MAP	
DATE: 01/11/91		SITE: BELLMAWR, N.J.	
TDD: 02-9011-22		FIGURE NUMBER:	
QUAD: RUNNEMEDE, N.J.		SCALE: 1"=2000'	

- Municipal well
- Domestic well
- Surface water
- Wetlands

REFERENCE NO. 15

CONTROL NO:

02-8806-05

DATE:

11/9/90

TIME:

11:15

DISTRIBUTION:

metro LTD Lundsell

BETWEEN:

Daniel van Abs PhD.

OF: NJDEP Bureau
of Water Supply Planning
& Policy Div of Water Resources

PHONE:

(609) 633-1179

AND:

JOE FILOSA

(NUS)

DISCUSSION:

I asked Dr Van Abs about the status of well head protection in New Jersey. He told me that A Full Program will be submitted to EPA within a few weeks. However he told me that there are currently two aspects of well head protection ~~currently~~ ^{now in use}. The first, concerns underground storage tanks. IF an underground tank is within a 2000' radius of a public supply well there is a mandatory double containment rule which must be implemented. The second aspect concerns new public supply wells. An inventory of all pollution sources within a 2500' radius of the wells must be conducted. IF the site appears to be a high risk the DEP will recommend relocation. IF the site appears to be a low risk DEP will permit the site in the manner it always had. He also said that the new plan will use the

ACTION ITEMS:

Uniform flow method which will evaluate a 10-15 year travel time for contaminants in the ground water.

REFERENCE NO. 16

NUS CORPORATION

TELECON NOTE

CONTROL NO:

DATE:

3-13-85

TIME:

1100

DISTRIBUTION:

BELL HARBOUR, INC. FILE
NJG3
02-8403-72A

BETWEEN:

ROBERT PARK

OF: GLOUCESTER CO.
HEALTH DEPT.

PHONE:

(609) 853-3200

AND:

PAUL McNALLY

(NUS)

DISCUSSION:

MR PARK CLAIMS THAT THERE IS SOME
BOATING AND FISHING ACTIVITIES IN
BIG TIMBER CREEK. MR PARK ALSO
CLAIMS THAT THERE IS TIDAL INFLUENCE
IN THAT SECTION OF BIG TIMBER CREEK.

ACTION ITEMS:

REFERENCE NO. 17

Ref 17

2011-0
11-2011-04

NUS CORPORATION

TELECON NOTE

CONTROL NO:

02-8901-04

DATE:

2/14/89

TIME:

3:30 p.m.

DISTRIBUTION:

Campbell Soup Company (Market St.)

BETWEEN:

John Rattie

OF: Delaware River
Basin Commission

PHONE:

(609) 883-9500

AND:

Tammy Marquart

(NUS)

DISCUSSION:

Mr. Rattie said the Delaware River is tidal in the Camden area. In the Camden area the river is a ~~big~~ large shipping area. The river is used for recreational boating, but no swimming.

For reference, the Ben Franklin Bridge is located at river mile 100.1 and the Cape is 0. He said the only drinking water intake is by PhiladelphiaTM City of Philadelphia at Tomsdale - river mile 110.5. Mr. Rattie mentioned the following industrial intakes: Roman Haas at river mile 106.2 (Phila.), Georgia Pacific at river mile 104.3 (NJ), another industrial intake at river mile 97.8 (NJ), Texaco at River mile 94.0 (NJ), PSE & G of Burlington at river mile 117.2 (NJ) and Stepan Chemical Co. at river mile 127.2 (NJ).

Tammy Marquart 2/14/89

ACTION ITEMS:

REFERENCE NO. 18

WATERA FILE - 07/17/90

NUMBER:	5223	ZONE:	1
NAME:	BELLMAWR BOROUGH	FINELAND:	N
STREET:	21 EAST BROWNING ROAD	WATERUSE:	P
CITY:	BELLMAWR	MGY:	620.0
STATE:	NJ	MGM:	62.000
ZIP:	08031--	GPM:	3800
ATTN:	ANTHONY SANBONE	PFLOW:	0.0
PHONE:	(609)933-1313	EFDATE:	07/12/1990
CONTACT:	EDWARD VERNICK	EXDATE:	12/31/1990
CTITLE:	G	PERMTYPE:	G
CPHONE:	(609)795-9595	MGD:	2.00
COUNTY1:	07	HEARING:	N
COUNTY2:		STAFF:	NB
BASIN1:	D	UPDATE:	02/28/1990
BASIN2:		FLAG:	
CRITAREA:	2		

NOTES1: EXXPIRATION DATE CAN BE EXTENDED TO 12/31/93 I

... Bell LA AN ... CONSERVATION ...

NOTES3:

WSOURCE FILE - 07/17/90

NUMBER:	5223	PINELAND:	N
SOURCEID:	5100032	ELEV:	20
LOCID:	1	ELEVACC:	
USGSUID:	070013	DEPTH:	164
LAT:	395221	DOPEN:	111
LON:	750636	BOPEN:	160
LLACC:		GEO1:	GKMR
NJGRID:	3111394	GEO2:	
COUNTY:	07	DIAMETER:	12
MUN:	04	WELLDATE:	07/01/1942
BASIN:	DDEL	CAPACITY:	500
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 07/17/90

NUMBER:	5223	PINELAND:	N
SOURCEID:	5102687	ELEV:	20
LOCID:	3	ELEVACC:	
USGSUID:	070013	DEPTH:	164
LAT:	395221	DOPEN:	334
LON:	750637	BOPEN:	359
LLACC:		GEO1:	GKMR
NJGRID:	3111386	GEO2:	
COUNTY:	07	DIAMETER:	8
MUN:	04	WELLDATE:	08/02/1956
BASIN:	DDEL	CAPACITY:	800
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 07/17/90

NUMBER:	5223	PINELAND:	N
SOURCEID:	3104969	ELEV:	50
LOCID:	4	ELEVACC:	
USGSUID:	070008	DEPTH:	557
LAT:	395146	DOPEN:	380
LON:	750542	BOPEN:	557
LLACC:		GEO1:	GKMR
NJGRID:	3112414	GEO2:	
COUNTY:	07	DIAMETER:	12
MUN:	04	WELLDATE:	08/ /1966
BASIN:	DDEL	CAPACITY:	1000
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 07/17/90

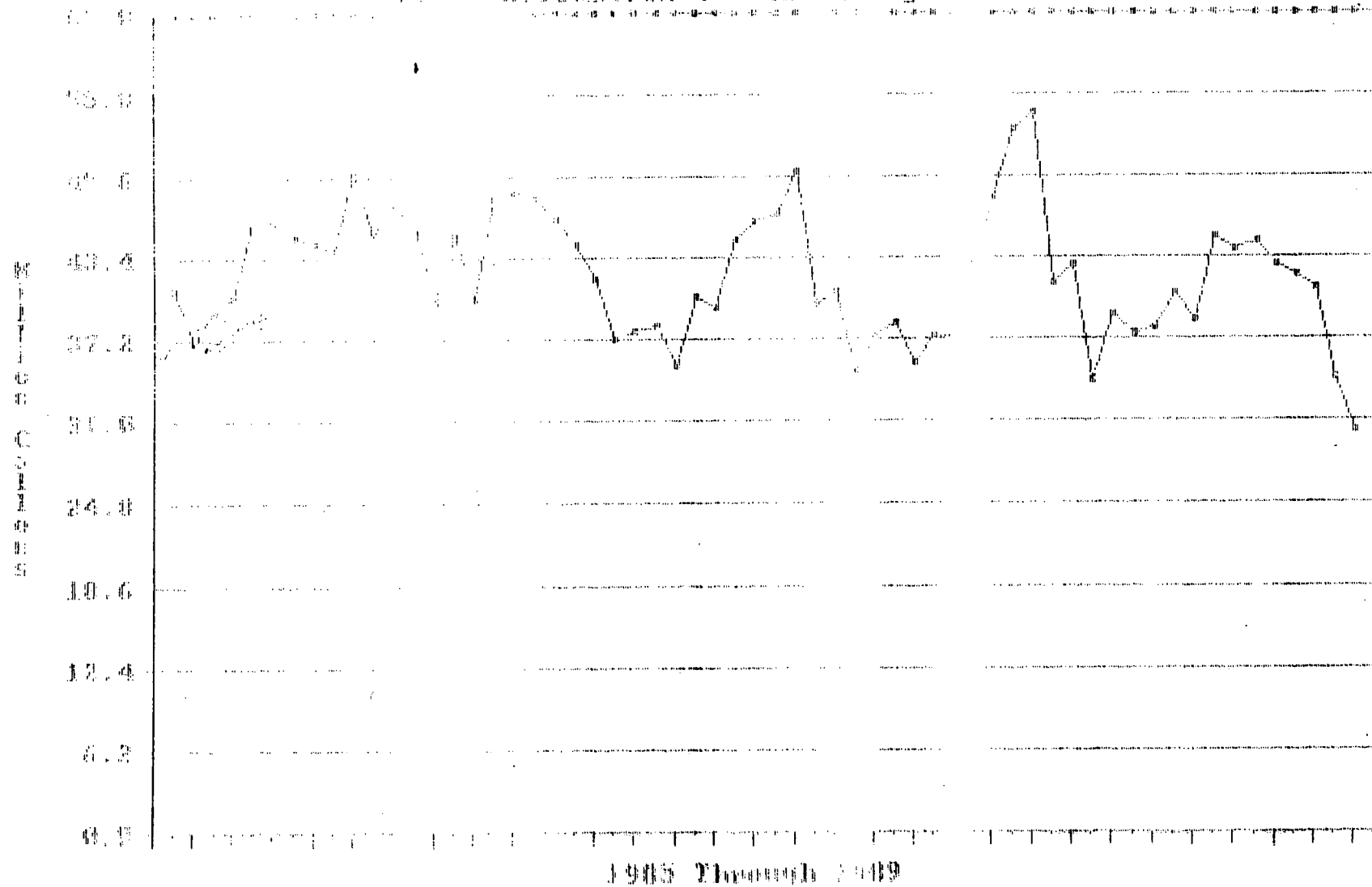
NUMBER:	5223	PINELAND:	N
SOURCEID:	3112315	ELEV:	50
LOCID:	5	ELEVACC:	
USGSUID:	070008	DEPTH:	562
LAT:	395152	DOPEN:	458
LON:	750542	BOPEN:	557
LLACC:		GEO1:	GKMR
NJGRID:	3112416	GEO2:	
COUNTY:	07	DIAMETER:	12
MUN:	04	WELLDATE:	12/ /1977
BASIN:	DDEL	CAPACITY:	1000
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

MSOURCE FILE - 07/17/90

NUMBER:	5223	PINELAND:	N
SOURCEID:	3119218	ELEV:	25
LOCID:	6	ELEVACC:	
UBSSUID:		DEPTH:	386
LAT:	395225	DOPEN:	350
LEN:	750640	BOPEN:	361
LLACC:		GEO1:	GKMR
NUGRID:	3111386	GEO2:	
COUNTY:	11	DIAMETER:	12
PLN:	04	WELLDATE:	07/09/1982
BSIN:	DDDEL	CAPACITY:	1000
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WIND SPEED BY BELLEMEAD AROUND Location C 62 100 mgus

(3223)



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>Boro of Bellmawr WATER DEPT.</u>		WATER ALLOCATION PERMIT # <u>5223</u>		
STREET ADDRESS <u>21 E Browning Rd.</u>		CITY <u>Bellmawr</u>	STATE <u>N.J.</u>	
		ZIP <u>08031</u>		
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1989</u>		
		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
1. Diversion from own sources		<u>OCT</u>	<u>Nov</u>	<u>DEC</u>
Surface				
Wells <u>4 #3</u>		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
Total <u>#4</u>		<u>13.443</u>	<u>10.213</u>	<u>9.766</u>
2. Received from other systems (see 6)		<u>#5</u>	<u>12.693</u>	<u>11.827</u>
3. Delivered to other systems (see 7)		<u>#6</u>	<u>14.964</u>	<u>12.164</u>
4. Net diversion for territory served (see 8)		<u>Total</u>	<u>41.100</u>	<u>34.204</u>
5. How is diversion determined? If estimated, give basis of estimate		<u>30.368</u>		
6. Systems from which water is received		<u>NONE</u>		
Systems to which water is delivered		<u>NONE</u>		
8. Municipalities supplied in territory served		<u>Boro of Bellmawr</u>		
9. Population supplied in territory served		<u>9,522</u>		
Summer population (if different than above)		<u>SAME</u>		
10. Number of service connections in territory served		<u>2,815</u>		
1. Number of service meters in territory served		<u>2,815</u>		

ANTHONY N. SANSONE
Name (Please Print)

Supt.
Title

Anthony N. Sansone
Signature

JAN 3, 1990
Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Static Level*</u>	<u>Total Head**</u>
3	31-2687	JAN 2, 1990	Well BASE	114'	
4	31-4969	"	"	131'	
5	31-12315	"	"	145'	
6	31-19218	"	"	110'	

1-51-32

U.S. G. S. Test well only !!

Depth to Water in FeetMeasurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)CHLORIDE ANALYSISWell Permit No.Date TakenAnalysis Results

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE Boro of Bellmawr Water Department		WATER ALLOCATION PERMIT # 5233	
STREET ADDRESS 21 East Browning Road		CITY Bellmawr	STATE ZIP New Jersey 08061
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month Jan	2nd Month Feb
		3rd Month Mar	
1. Diversion from own sources	Surface		
	Wells # 3	NONE	NONE
	Total # 4	10,239	9,151
2. Received from other systems (see 6)	# 5	9,873	8,390
3. Delivered to other systems (see 7)	# 6	10,143	9,069
4. Net diversion for territory served (see 8)	Total	30,255	26,610
5. How is diversion determined? If estimated, give basis of estimate		Flow Meters	
6. Systems from which water is received None			
7. Systems to which water is delivered None			
8. Municipalities supplied in territory served Boro of Bellmawr			
9. Population supplied in territory served 9,522			
Summer population (if different than above) Same			
10. Number of service connections in territory served 2,815			
11. Number of service meters in territory served 2,815			

Anthony N. Sansone
Name (Please Print)

Supt. of Water
Title

Anthony N. Sansone
Signature

4 / 2 / 90
Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Static Level*</u>	<u>Total Head**</u>
3	31-2687	4/ 2 / 90	Well Base	87 ft	
4	31-4969	"	"	131 ft	
5	31-12315	"	"	142 ft	
6	31-19218	"	"	85 ft	

1 1-51-32 U.S.G.S. Test Well Only !!!!!

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>Boro of Bellmawr Water Dept</u>		WATER ALLOCATION PERMIT # <u>5223</u>		
STREET ADDRESS <u>21 EAST Browning Rd</u>		CITY <u>Bellmawr</u>	STATE <u>New Jersey</u>	
ZIP <u>08631</u>				
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input checked="" type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>		
		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		<u>APRIL</u>	<u>MAY</u>	<u>JUNE</u>
		<u>0</u>	<u>0</u>	<u>0</u>
		<u>10.004</u>	<u>11.119</u>	<u>11.175</u>
		<u>9.873</u>	<u>10.673</u>	<u>10.284</u>
		<u>11.280</u>	<u>13.327</u>	<u>12.178</u>
		<u>31.157</u>	<u>35.119</u>	<u>33.637</u>
		* List individual well usage on reverse side of form		
1. Diversion from own sources				
Surface				
4 Wells* <u>#3</u>				
Total <u>#4</u>				
2. Received from other systems (see 6) <u>#5</u>				
3. Delivered to other systems (see 7) <u>#6</u>				
4. Net diversion for territory served (see 8) <u>Total</u>				
5. How is diversion determined? If estimated, give basis of estimate <u>Flow Meters</u>				
6. Systems from which water is received <u>NONE</u>				
7. Systems to which water is delivered <u>NONE</u>				
8. Municipalities supplied in territory served <u>Boro of Bellmawr</u>				
9. Population supplied in territory served <u>9,522</u>				
Summer population (if different than above) <u>SAME</u>				
10. Number of service connections in territory served <u>2,815</u>				
11. Number of service meters in territory served <u>2,815</u>				

MARK J. HUFF
Name (Please Print)ASST. SUPT
TitleMark J. Huff
Signature7/2/90
Date

5223

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☐ Air Line ☐ Tape (Check appropriate box)

Well No.	Well Permit No.	Date Taken	Site Elevation	Level*	Total Head**
# 3	31-2687	7-2-90	Well BASE	88 ft	
# 4	31-4969	7-2-90	"	131 ft	
# 5	31-12315	7-2-90	"	141 ft	
# 6	31-19218	7-2-90	"	81 ft	
# 1	1-51-32	U.S.G.S	Test well only !?		

* Depth to Water in Feet

* Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

Well Permit No.	Date Taken	Analysis Results
Well 31-4969	4/9/90	ND mg/L
Well 31-12315	4/9/90	4.8 mg/L
Well 31-19218	4/9/90	14 mg/L

* ND Non Detectable

INDIVIDUAL WELL USAGE***

Well No.	Well Permit No.	APRIL Month 1	MAY Month 2	JUNE Month 3
# 3	31-2687	0	0	0
# 4	31-4969	10.004	11.119	11.175
# 5	31-12315	9.873	10.673	10.284
# 6	31-19218	11.280	13.327	12.178

***Units of 1,000

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

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2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE Boro of Bellmawr Water Dept.		WATER ALLOCATION PERMIT # 5223		
STREET ADDRESS 21 EAST BEAUNING RD		CITY Bellmawr	STATE N.J.	
P.O. Box 368		ZIP 08099		
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990		
		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		JULY	AUG	SEPT
1. Diversion from own sources		NONE	NONE	NONE
Surface				
4 Wells* #3				
Total #4		11.507	11.469	12.128
2. Received from other systems (see 6)		12.159	11.288	10.217
3. Delivered to other systems (see 7)		13.312	12.119	11.118
4. Net diversion for territory served (see 8)		36.978	34.876	33.463
		Total		
* List individual well usage on reverse side of form				
5. How is diversion determined? If estimated, give basis of estimate Flow Meters				
6. Systems from which water is received NONE				
7. Systems to which water is delivered "				
8. Municipalities supplied in territory served Boro of Bellmawr				
9. Population supplied in territory served 9,522				
Summer population (if different than above) SAME				
10. Number of service connections in territory served 2,815				
11. Number of service meters in territory served 2,815				

Name (Please Print) **ANTHONY N. SANSONE**Title **Supt of WATER**Signature **Anthony N. Sansone**Date **10/3/90**

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☐ Air Line ☐ Tape (Check appropriate box)

Well No.	Well Permit No.	Date Taken	Site Elevation	Level*	Total Head**
# 3	31-2687	10/2/90	Well Base	89 ft	
# 4	31-4969	10/2/90	"	130 ft	
# 5	31-12315	10/2/90	"	141 ft	
# 6	31-19218	10/2/90	"	87 ft	
# 1	1-51-32	USGS Test well only !			

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

Well Permit No.	Date Taken	Analysis Results
31-4969	4/9/90	ND
31-12315	4/9/90	4.8 mg/L
31-19218	4/9/90	14 mg/L
31-2687	Temp. out of Service	No Sample Taken

INDIVIDUAL WELL USAGE***

Well No.	Well Permit No.	July Month 0	Aug Month 1	Sept Month 2
# 3	31-2687	NONE	NONE	NONE
# 4	31-4969	11.507	11.469	12.128
# 5	31-12315	12.154	11.288	10.217
# 6	31-19218	13.312	12.119	11.118

***Units of 1,000

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

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4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>Boro of Bellmawr Water Dept.</u>		WATER ALLOCATION PERMIT # <u>5223</u>	
STREET ADDRESS <u>21 EAST Branning Rd P.O. Box 368</u>		CITY <u>Bellmawr</u>	STATE <u>NJ</u>
		ZIP <u>08099</u>	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month	2nd Month
		<u>OCT</u>	<u>NOV</u>
		<u>NONE</u>	<u>NONE</u>
		<u>11.460</u>	<u>11.232</u>
		<u>10.842</u>	<u>9.975</u>
		<u>10.622</u>	<u>9.734</u>
		<u>32.924</u>	<u>30.941</u>
		<u>30.612</u>	
1. Diversion from own sources		Surface # <u>Wells* 4</u>	
		Total <u>4</u>	
2. Received from other systems (see 6)		<u>5</u>	
3. Delivered to other systems (see 7)		<u>6</u>	
4. Net diversion for territory served (see 8)		<u>Total</u>	
* List individual well usage on reverse side of form			
5. How is diversion determined? If estimated, give basis of estimate <u>Flow meters</u>			
6. Systems from which water is received <u>NONE</u>			
7. Systems to which water is delivered <u>NONE</u>			
8. Municipalities supplied in territory served <u>Boro of Bellmawr</u>			
9. Population supplied in territory served <u>9,522</u>			
Summer population (if different than above) <u>SAME</u>			
10. Number of service connections in territory served <u>2,815</u>			
11. Number of service meters in territory served <u>2,815</u>			

Anthony N. Sansone Supt of WATER Anthony N. Sansone JAN 6, 1991
Name (Please Print) Title Signature Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
# 3	31-2687	1/5/91	Well	90 ft	
# 4	31-4969	1/5/91	BASE	131 ft	
# 5	31-12315	1/5/91		141 ft	
# 6	31-19218	1/5/91		88 ft	
# 1	1-51-32	NT	USGS Test well only!		

* Depth to Water in Feet

* Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
# 3	31-2687	NONE	NONE	NONE
# 4	31-4969	11.460	11.232	11.660
# 5	31-12315	10.892	9.975	9.752
# 6	31-19218	10.622	9.734	9.200

***Units of 1,000

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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PUBLIC WATER SUPPLY DIVERSION REPORT

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4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>Boro of Bellmawr WATER DEPT.</u>		WATER ALLOCATION PERMIT # <u>5223</u>	
STREET ADDRESS <u>21 E. Browning Rd P.O. Box 368</u>		CITY <u>Bellmawr</u>	STATE <u>N.J.</u>
ZIP <u>08099</u>			
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1991</u>	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month	2nd Month
		JAN	FEB
		NONE	NONE
		10.492	10.060
		10.350	8.313
		9.422	8.659
		30.264	27.032
		29.080	
		* List individual well usage on reverse side of form	
5. How is diversion determined? If estimated, give basis of estimate			
6. Systems from which water is received <u>NONE</u>			
7. Systems to which water is delivered <u>NONE</u>			
8. Municipalities supplied in territory served <u>Boro of Bellmawr</u>			
9. Population supplied in territory served <u>9,522</u>			
Summer population (if different than above) <u>SAME</u>			
10. Number of service connections in territory served <u>2,815</u>			
11. Number of service meters in territory served <u>2,815</u>			

Anthony N. Sansone
Name (Please Print)

Supt.
Title

Anthony N. Sansone
Signature

APR 3, 1991
Date

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
3	31-2687	4-2-91	Well DASE	89 ^{ft}	
4	31-4964	4-2-91	"	132 ^{ft}	
	31-12315	4-2-91	"	141 ^{ft}	
	31-19218	4-2-91	"	89 ^{ft}	
1-51-32		N.T.	USGS Test well only !!!		

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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16.8 mg/l

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
3	31-2687	NONE	NONE	NONE
4	31-4969	10.492	10.060	10.773
5	31-12315	10.350	8,313	9,730
6	31-19218	9.422	8,659	8,577

***Units of 1,000

WATERA FILE - 10/23/90

NUMBER:	5030	ZONE:	1
NAME:	BROOKLAWN BOROUGH WATER DEPT.	PINELAND:	N
STREET:	HAAKON ROAD	WATERUSE:	P
CITY:	BROOKLAWN	MGY:	78.0
STATE:	NJ	MGM:	15.500
ZIP:	08030-	GPM:	250
ATTN:	WILLIAM C PACKER SUPT	PFLOW:	0.0
PHONE:	(609)456-2638	EFDATE:	09/25/1989
OWNER:	EDWARD VERNICK	EXDATE:	02.31.1990
OWNER:		PERMT/FE:	
OPHON:	(609)663-2400	MGD:	0.50
COUNTY1:	07	HEARING:	N
COUNTY2:		STAFF:	BAC
BASIN1:	D	UPDATE:	03/02/1989
BASIN2:		FLAG:	
CRITAREA:	2		

NOTES1:

NOTES2:

NOTES3:

WSOURCE FILE - 10/23/90

NUMBER: 5030
 SOURCEID: 3104325
 LOCID: 1
 USGSUID: 070520
 LAT: 395242
 LON: 750732
 LLACC: F
 NJGRID: 3111348
 COUNTY: 07
 MUN: 07
 BASIN: D
 CRITAREA: 2
 ZONE: 1

PINELAND: N
 ELEV:
 ELEVACC:
 DEPTH: 327
 DOPEN: 307
 BOPEN: 327
 GEO1: BKMR
 GEO2:
 DIAMETER: 0
 WELLDATE: 02/15/1979
 CAPACITY: 300
 MGM: 0.000
 FLAG:

WSOURCE FILE - 10/23/90

NUMBER: 5030
 SOURCEID: 3114471
 LOCID: 3
 USGSUID: 070531
 LAT: 395243
 LON: 750733
 LLACC: F
 NJGRID: 3111348
 COUNTY: 07
 MUN: 07
 BASIN: D
 CRITAREA: 2
 ZONE: 1

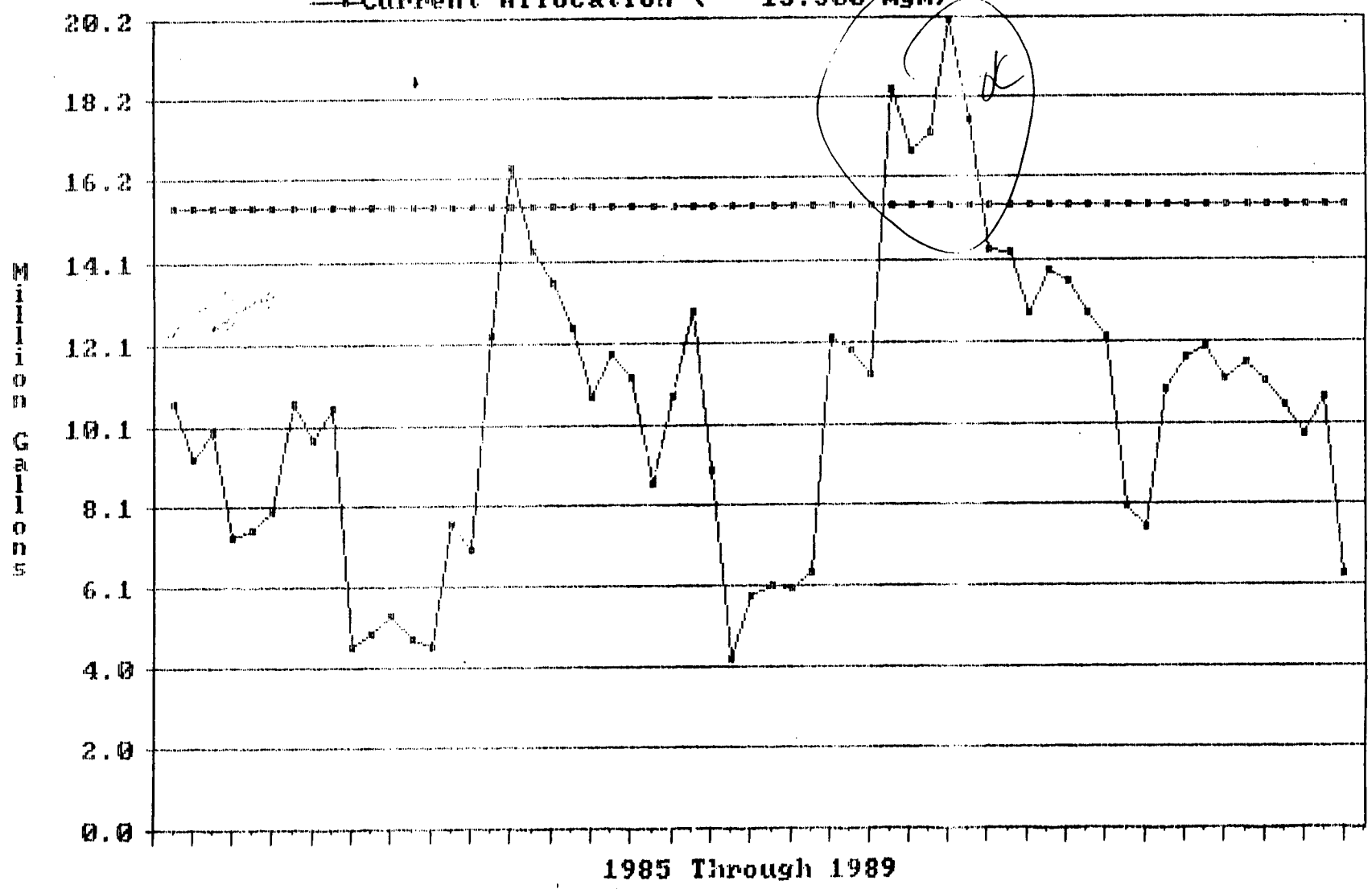
PINELAND: N
 ELEV:
 ELEVACC:
 DEPTH: 320
 DOPEN: 300
 BOPEN: 320
 GEO1:
 GEO2:
 DIAMETER: 10
 WELLDATE: 02/15/1979
 CAPACITY: 350
 MGM: 0.000
 FLAG:

WSOURCE FILE - 10/23/90

NUMBER:	5030	PINELAND:	N
SOURCEID:	3119765	ELEV:	
LOCID:	4	ELEVACC:	
USGSUID:	070596	DEPTH:	293
LAT:	395247	DOPEN:	4 263
LON:	750737	EOPEN:	3 373
LLACC:	F	GEO1:	6-4
NUGRID:	3111372	GEO2:	
COUNTY:	07	DIAMETER:	10
PON:	47	WATER:	2.1 12.1
BASIN:	0	CAPACITY:	10
CATAREA:	2	PON:	
ZONE:	1	FLAG:	

WATER USAGE BY BROOKLAWN BOROUGH WATER DEPT. (5030)

—•— Current Allocation (15.500 Mgm)



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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INSTRUCTIONS:

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4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE: <u>BORO OF BROOKLAWN, WATER DEPT.</u>		WATER ALLOCATION PERMIT # <u>5030</u>		
STREET ADDRESS <u>HAVEN RD & CHRISTIANA ST. BROOKLAWN</u>		CITY <u>BROOKLAWN</u>	STATE <u>N. J.</u>	
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		ZIP <u>08030</u>		
FOR THE YEAR: <u>1990</u>		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
1. Diversion from own sources	Surface <u>3</u> Wells Total	<u>9.105</u>	<u>8.754</u>	<u>9.425</u>
2. Received from other systems (see 6)		<u>9.105</u>	<u>8.754</u>	<u>9.425</u>
3. Delivered to other systems (see 7)		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
4. Net diversion for territory served (see 8)		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
5. How is diversion determined? If estimated, give basis of estimate		<u>9.105</u>	<u>8.754</u>	<u>9.425</u>
<u>FLOW METERS AT WELL STATIONS.</u>				
6. Systems from which water is received	<u>3- 300 G.P.M. WELLS</u>			
7. Systems to which water is delivered	<u>0.4 mgd ELEVATED TANK.</u>			
8. Municipalities supplied in territory served	<u>BORO OF BROOKLAWN</u>			
9. Population supplied in territory served	<u>2520</u>			
Summer population (if different than above) _____				
10. Number of service connections in territory served	<u>760</u>			
11. Number of service meters in territory served	<u>100 70</u>			

WILLIAM C. PACHER
Name (Please Print)SUPT. PUBLIC WORKS
Title

Signature

Date

April 16, 1990

WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Static Level*</u>	<u>Total Head**</u>
1	310-4325	0		0	
2	3114471	2-16-90		70'	
4	3119765	3-21-90		65'	

Depth to Water in Feet

Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

FLUORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
310-4325	0	0
3114471	2-18-90	25 mg/l
3119765	2-26-90	28 mg/l

<u>WELL NO.</u>	<u>1ST MONTH</u>	<u>2ND MONTH</u>	<u>3RD MONTH</u>
#1	0.0	0.0	0.0
#3	5.099	5.099	1.282
#4	4.006	4.326	4.779

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.

The sums of Items 1 and 2 should equal the sums of Items 3 and 4.

Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE BOARD OF BROOKLAWN		WATER ALLOCATION PERMIT # 5030		
STREET ADDRESS HARMON RD. & CHRISTIANA ST.		CITY BROOKLAWN	STATE N.J.	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input checked="" type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		ZIP 08030		
FOR THE YEAR: 1990		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
1. Diversion from own sources				
Surface				
3 Wells*		9.511	11.335	8.410
Total		9.511	11.335	8.410
2. Received from other systems (see 6)		NONE	NONE	NONE
3. Delivered to other systems (see 7)		NONE	NONE	NONE
4. Net diversion for territory served (see 8)		9.511	11.335	8.410
* List individual well usage on reverse side of form				
5. How is diversion determined? If estimated, give basis of estimate FLOW METERS AT WELL STATIONS.				
6. Systems from which water is received 3-300 gpm WELLS.				
7. Systems to which water is delivered 0.4 mgd ELEVATED TANK				
8. Municipalities supplied in territory served BOARD OF BROOKLAWN				
9. Population supplied in territory served 2520				
Summer population (if different than above)				
10. Number of service connections in territory served 760				
11. Number of service meters in territory served 10070				

William C. Pachter **SUPV. PUBLIC WORKS** **William C. Pachter** **July 6, 1990**
Name (Please Print) Title Signature Date

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

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3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
- Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE: <u>BOROUGH OF BROOKLAWN, WATER DEPT.</u>		WATER ALLOCATION PERMIT # <u>5030</u>		
STREET ADDRESS <u>BOROUGH HALL</u>		CITY <u>BROOKLAWN</u>	STATE <u>N.J.</u>	
OR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		ZIP <u>08030</u>		
FOR THE YEAR: <u>1990</u>		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
1. Diversion from own sources				
Surface				
<u>3</u> Wells*		<u>8.176</u>	<u>11.087</u>	<u>10.517</u>
Total		<u>8.176</u>	<u>11.087</u>	<u>10.517</u>
2. Received from other systems (see 6)		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
3. Delivered to other systems (see 7)		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
4. Net diversion for territory served (see 8)		<u>8.176</u>	<u>11.087</u>	<u>10.517</u>
5. How is diversion determined? If estimated, give basis of estimate		* List individual well usage on reverse side of form		
<u>FLOW MISTERS AT WELL STATIONS.</u>				
6. Systems from which water is received		<u>3 - 300 G.P.M. WELLS</u>		
7. Systems to which water is delivered		<u>0.4 M.G.D. ELEVATED TANK.</u>		
8. Municipalities supplied in territory served		<u>BOROUGH OF BROOKLAWN</u>		
9. Population supplied in territory served		<u>2530</u>		
Summer population (if different than above)				
10. Number of service connections in territory served		<u>755</u>		
11. Number of service meters in territory served		<u>10090</u>		

William C. Pacher SUPV. PUBLIC WORKS William C. Pacher Oct. 11, 1990
Name (Please Print) Title Signature Date

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER RESOURCES

BUREAU OF WATER ALLOCATION

CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

Reports must be filed within 30 days following the close of each quarter.

Report all quantities in units of 1,000 gallons.

3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.

4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.

5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.

Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>BOROUGH OF BROOKLAWN WATER DEPT</u>		WATER ALLOCATION PERMIT # <u>5030</u>		
STREET ADDRESS <u>HARVON RD. BROOKLAWN, N.J.</u>		CITY <u>N.J.</u>	STATE <u>08030</u>	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>		
1. Diversion from own sources Surface <u>3</u> Wells* Total		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		<u>10.505</u>	<u>7.302</u>	<u>7.512</u>
		<u>10.505</u>	<u>7.302</u>	<u>7.512</u>
2. Received from other systems (see 6)		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
3. Delivered to other systems (see 7)		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
4. Net diversion for territory served (see 8)		<u>10.505</u>	<u>7.302</u>	<u>7.512</u>
* List individual well usage on reverse side of form				
5. How is diversion determined? If estimated, give basis of estimate <u>FLOW METERS AT WELL STATIONS</u>				
6. Systems from which water is received <u>3 - 400 D.P.M. WELLS</u>				
7. Systems to which water is delivered <u>0.4 M.G.D. ELEVATED STORAGE TANK.</u>				
8. Municipalities supplied in territory served <u>BORO OF BROOKLAWN</u>				
9. Population supplied in territory served <u>2525</u>				
Summer population (if different than above) _____				
10. Number of service connections in territory served <u>756</u>				
11. Number of service meters in territory served <u>10070</u>				

William C. Packer LICENSED OPERATOR William C. Packer Jan 15, 1991
Name (Please Print) Title Signature Date

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
- Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
- Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
- Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>BOROUGH OF BROOKLAWN WATER DEPT.</u>		WATER ALLOCATION PERMIT # <u>5030</u>		
STREET ADDRESS <u>BROADWAY & TOWN CENTER</u>		CITY <u>BROOKLAWN</u>	STATE <u>N.J.</u> ZIP <u>08030</u>	
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1991</u>		
1. Diversion from own sources Surface <u>3</u> Wells* Total		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		<u>7.315</u>	<u>7.189</u>	<u>7.252</u>
		<u>7.315</u>	<u>7.189</u>	<u>7.252</u>
		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
2. Received from other systems (see 6)		<u>7.315</u>	<u>7.189</u>	<u>7.252</u>
3. Delivered to other systems (see 7)		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
4. Net diversion for territory served (see 8)		<u>7.315</u>	<u>7.189</u>	<u>7.252</u>
5. How is diversion determined? If estimated, give basis of estimate <u>FLOW METERS AT WELL STATIONS.</u>				
6. Systems from which water is received <u>3-300 gpm WELLS.</u>				
7. Systems to which water is delivered <u>0.400 MGD ELEVATED TANK.</u>				
8. Municipalities supplied in territory served <u>BOA OF BROOKLAWN</u>				
9. Population supplied in territory served <u>2525</u>				
Summer population (if different than above) _____				
10. Number of service connections in territory served <u>760</u>				
11. Number of service meters in territory served <u>10000</u>				

* List individual well usage on reverse side of form

William C. Packer LICENSED OPERATOR William C. Packer May 10, 1991
Name (Please Print) Title Signature Date

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
1	310-4325	0	0	0	0
3	3114471	1-26-91		94'	
4	3119765	3-15-91		98'	

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
310-4325	0	0
3114471	2-20-91	28 mg/l
3119765	3-3-91	31 mg/l

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
1	310-4325	0	0	0
3	3114471	3.412	4.016	3.821
4	3119765	3.403	3.173	3.431

***Units of 1,000

DWR-017 B

WATERA FILE - 12/12/88

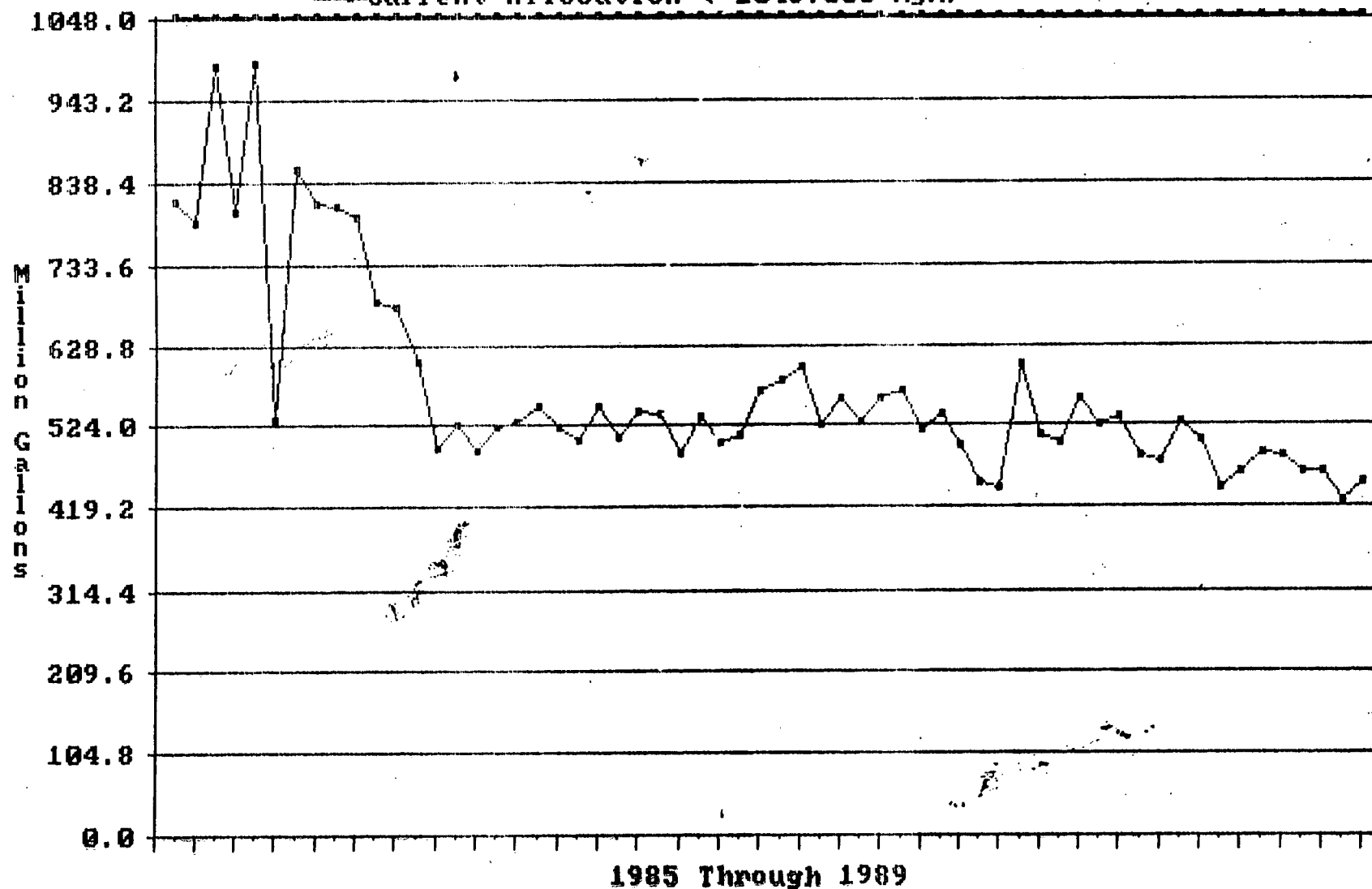
NUMBER:	5302	ZONE:	2
NAME:	CAMDEN CITY, WATER DIVISION	PINELAND:	N
STREET:	ROOM 419A, CITY HALL	WATERUSE:	P
CITY:	CAMDEN	MGY:	0.0
STATE:	NJ	MGM:	1048.000
ZIP:	08101-	GPM:	42474
ATTN:		PFLOW:	0.0
PHONE:	() -	EFDATE:	02/06/1986
CONTACT:	FRED MARTIN	EXDATE:	07/01/1988
CTITLE:		PERMTYPE:	G
CPHONE:	(609)757-7680	MGD:	33.81
COUNTY1:	07	HEARING:	N
COUNTY2:		STAFF:	DEH
BASIN1:	DDEL	UFDATE:	02/07/1986
BASIN2:		FLAG:	
CRITAREA:	2		

NOTES1:

NOTES2:

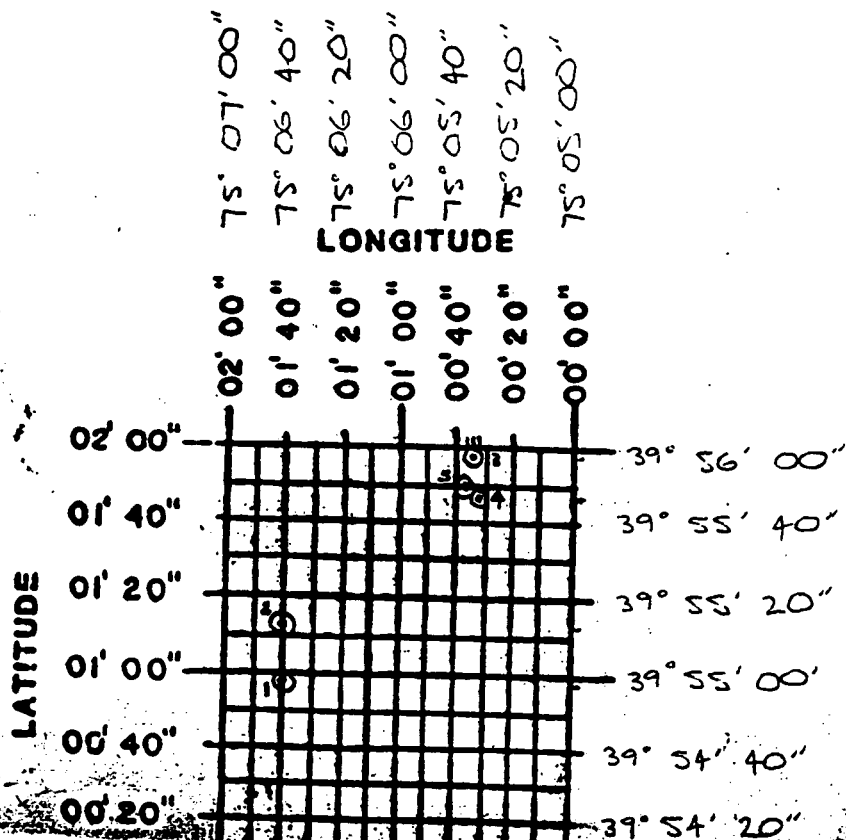
NOTES3:

WATER USAGE BY CAMDEN CITY, WATER DIVISION (5302)
— Current Allocation (1048.000 mgm)



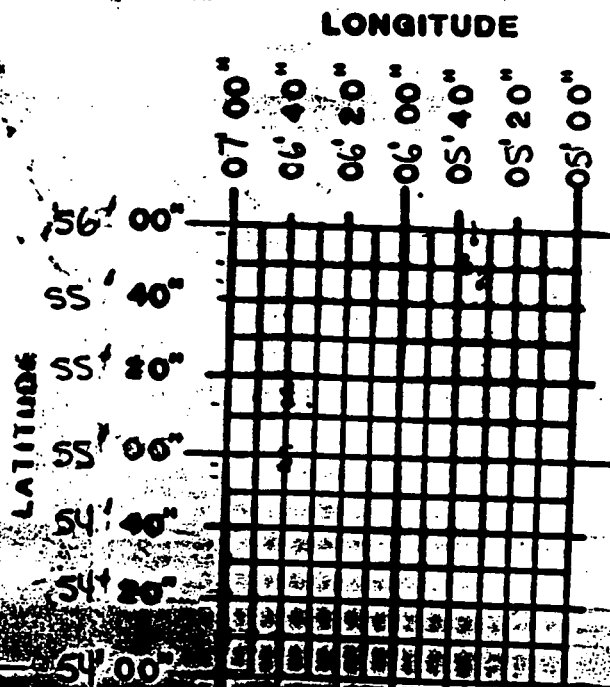
City of CAMDEN # 5302

		<u>Lat</u>	<u>Lon</u>
① 5100060	City 7	39° 54' 57"	75° 06' 40"
→ ② 5100061	City 11	39° 55' 12"	75° 06' 40"
③ 3100904	City 13	39° 55' 57"	75° 05' 35"
④ 3101250	City 17	39° 55' 46"	75° 05' 33"
⑤ 3109574	City 18	39° 55' 50"	75° 05' 37"



CITY OF CAMDEN #5302

<u>SOURCEID</u>	<u>LOCID</u>	<u>POST</u>	<u>LAT</u>	<u>LONG</u>	<u>CRT AREA</u>
31-904	- CITY 13	(1)	39° 55' 57"	75° 05' 35"	2
31-1250	- CITY 17	(2)	39° 55' 46"	75° 05' 33"	2
31-9574	- CITY 18	(3)	39° 55' 50"	75° 05' 37"	2
→ 51-61	- CITY 11	(4)	39° 55' 12"	75° 06' 40"	
→ 51-60	- CITY 7	(5)	39° 54' 57"	75° 06' 40"	



well	permit	January	February	March	
Morris 3	31-945	0	0	17,025,000	17,025,000
Morris 4	31-4252	0	337,500	2,281,500	2,619,000
Morris 6	51-51	0	0	0	0
Morris 7	51-52	46,872,000	41,186,250	41,674,500	129,732,750
Morris 8	31-944	0	0	0	0
Morris 10	31-4251	29,145,000	36,870,000	41,520,000	107,535,000
Morris 11	31-15745	46,872,000	41,185,620	46,872,000	134,929,620
Morris 12	31-16814	53,568,000	48,384,000	53,568,000	155,520,000
Morris 13	31-16813	53,568,000	48,384,000	53,568,000	155,520,000
Delair 1	51-53	22,320,000	20,160,000	22,320,000	64,800,000
Delair 2	51-54	0	0	0	0
Delair 3	31-55	29,016,000	26,208,000	29,016,000	84,240,000
Puchack 1	51-56	58,032,000	52,416,000	58,032,000	168,480,000
City 11	51-61	0	8,736,000	31,248,000	39,984,000
Parkside 17	31-1250	26,784,000	24,192,000	26,784,000	77,760,000
Parkside 18	31-9574	40,176,000	36,288,000	40,176,000	116,640,000
		406,353,000	384,347,370	464,085,000	1,254,785,370

WSOURCE FILE - 12/12/88

→ NUMBER: 5302 ZONE: 2
SOURCEID: 5100061 PINELAND: N
→ LOCID: CITY 11 GEO1: GKMR
USGSUID: 070046 GEO2:
LAT: 395512 DEPTH: 159 *Total Pop of 30,000*
LON: 750640 DOPEN: 124 *÷ 16 wells = 3125 people*
LLACC: BOPEN: 154 *served by each well*
NJGRID: 3101953 DIAMETER:
COUNTY: 07 WELLDATE: / /
MUN: 08 CAPACITY: 1010
BASIN: DDEL MGM: 0.000
CRITAREA: 2 FLAG:

WSOURCE FILE - 12/12/88

NUMBER: 5302 ZONE: 2
SOURCEID: 3100904 PINELAND: N
LOCID: CITY 13 GEO1: GKMR
USGSUID: 070068 GEO2:
LAT: 395557 DEPTH: 230
LON: 750535 DOPEN: 185
LLACC: BOPEN: 225
NJGRID: 3102712 DIAMETER: 18
COUNTY: 07 WELLDATE: 06/19/1955
MUN: 08 CAPACITY: 1200
BASIN: DDEL MGM: 0.000
CRITAREA: 2 FLAG:

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☐ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
-----------------	------------------------	-------------------	-----------------------	---------------	---------------------

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
------------------------	-------------------	-------------------------

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
City 11	51-61 ✓	9,564.00	12,412.75	3,286.50
Morris 3	31-945 ✓	23,175.00	34,815.00	40,665.00
4	31-4252 ✓	3,927.00	8,085.00	8,799.00
7	51-52 ✓	45,360.00	37,926.00	45,312.75
8	31-944 ✓	25,920.00	17,145.00	25,893.00
10	31-4251 ✓	38,205.00	31,305.00	36,078.00
11	31-15745 ✓	45,360.00	30,586.50	23,499.00
12	31-16814 ✓	49,104.00	49,104.00	42,768.00
13	31-16813 ✓	45,936.00	48,658.50	43,098.00
Delair 1	51-53 ✓	2,227.50	2,227.50	
3	51-55 ✓	27,144.00	27,582.75	28,050.75
Puchack 1	51-56 ✓	56,160.00	58,032.00	56,160.00
Parks. 17	31-1250 ✓	25,516.80	26,611.20	25,689.60
18	31-9574 ✓	38,275.20	39,916.80	38,534.40

DEPT. ENV. PROTECTION
DIV. OF WATER RESOURCES
OCT 1990

***Units of 1,000

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE City of Camden, Utilities Department		WATER ALLOCATION PERMIT # 5302		
STREET ADDRESS Room 419A, City Hall		CITY Camden	STATE NJ	
		ZIP 08101		
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990		
		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
1. Diversion from own sources		0	0	0
Surface				
Wells*		451,543.5	441,696.8	376,662
Total		451,543.5	441,696.8	376,662
2. Received from other systems (see 6)				
3. Delivered to other systems (see 7)				
4. Net diversion for territory served (see 8)		451,543.5	441,696.8	376,662
* List individual well usage on reverse side of form				
5. How is diversion determined? If estimated, give basis of estimate Estimate based upon hours of operation and well tests				
6. Systems from which water is received Raritan-Magothy aquifer				
7. Systems to which water is delivered City of Camden, exclusive of 11th and 12th wards.				
8. Municipalities supplied in territory served " "				
9. Population supplied in territory served approximately 50,000				
Summer population (if different than above)				
10. Number of service connections in territory served 13,930				
11. Number of service meters in territory served 13,388				

Frederick H. Martin, Jr.

Utilities Director

Name (Please Print)

Title

Signature

October 25, 1990

Date

1990

GALLONS PUMPED

	Permit	July	August	September	Total
Morris 3	31-945	39,105,000	21,660,000	10,755,000	71,520,000
Morris 4	31-4252	3,990,000	7,749,000	609,000	12,348,000
Morris 6	51-51	648,000	648,000	0	1,296,000
Morris 7	51-52	45,344,250	44,556,750	45,234,000	135,135,000
Morris 8	31-944	25,335,000	8,640,000	0	33,975,000
Morris 10	31-4251	35,595,000	31,905,000	38,055,000	105,555,000
Morris 11	31-1574	45,659,250	46,620,000	45,360,000	137,639,250
Morris 12	31-1681	47,256,000	47,866,500	47,520,000	142,642,500
Morris 13	31-1681	47,272,500	47,866,500	47,520,000	142,659,000
Delair 1	51-53	0	16,713,000	38,880,000	55,593,000
Delair 2	51-54	0	0	0	0
Delair 3	51-55	11,524,500	27,924,000	26,208,000	65,656,500
Puchack 1	51-56	58,032,000	58,032,000	56,160,000	172,224,000
City 11 ←	51-61	24,822,000	16,716,000	5,817,000	47,355,000
Parkside 17	31-1250	26,784,000	25,920,000	6,768,000	59,472,000
Parkside 18	31-9574	40,176,000	38,880,000	7,776,000	86,832,000
Total		451,543,500	441,696,750	376,662,000	1,269,902,250

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

5302

CAMDEN CITY, WATER DIVISION
ROOM 419A, CITY HALL
CAMDEN, NJ 08101-
ATTN:

NAME OF PERMITTEE

STREET ADDRESS

WATER ALLOCATION PERMIT #

STATE

ZIP

FOR THE QUARTER ENDING:

- ☐
- March 31
- ☐
- Sept. 30
-
- ☐
- June 30
- ☒
- Dec. 31

FOR THE YEAR:

1990

SUMMARY OF DIVERSION IN UNITS OF 1,000

1. Diversion from own sources

Surface

Wells*

Total

2. Received from other systems (see 6)

3. Delivered to other systems (see 7)

4. Net diversion for territory served (see 8)

1st Month

2nd Month

3rd Month

386,194

395,952

411,094

386,194

395,952

411,094

* List individual well usage on reverse side of form

5. How is diversion determined? If estimated, give basis of estimate

Calculated based on hours of well usage and measured well output.

6. Systems from which water is received Raritan-Magothy aquifer7. Systems to which water is delivered City of Camden, exclusive of 11th and 12th wards8. Municipalities supplied in territory served " "9. Population supplied in territory served approximately 50,000

Summer population (if different than above) _____

10. Number of service connections in territory served 13,97211. Number of service meters in territory served 13,431

Frank Al-Greene

Name (Please Print)

Supervising Program Analyst

Title



Signature

April 1, 1991

Date

1990

GALLONS PUMPED

	Permit	October	November	December	Total
Morris 3	31-945	13,470,000	14,490,000	22,965,000	50,925,000
Morris 4	31-4252	2,037,000	0	42,000	2,079,000
Morris 6	51-51	0	0	0	0
Morris 7	51-52	40,792,500	37,847,250	46,746,000	125,385,750
Morris 8	31-944	0	0	0	0
Morris 10	31-4251	27,480,000	17,190,000	7,560,000	52,230,000
Morris 11	31-1574	40,934,250	41,406,750	46,872,000	129,213,000
Morris 12	31-1681	49,104,000	47,520,000	49,104,000	145,728,000
Morris 13	31-1681	49,104,000	47,520,000	49,104,000	145,728,000
Delair 1	51-53	40,054,500	38,880,000	35,005,500	113,940,000
Delair 2	51-54	0	0	0	0
Delair 3	51-55	28,665,000	28,080,000	29,016,000	85,761,000
Puchack 1	51-56	58,032,000	56,160,000	57,720,000	171,912,000
City 11 ←	51-61	3,108,000	2,058,000	0	5,166,000
Parkside 17	31-1250	9,504,000	25,920,000	26,784,000	62,208,000
Parkside 18	31-9574	23,908,500	38,880,000	40,176,000	102,964,500
Total		386,193,750	395,952,000	411,094,500	1,193,240,250

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>CITY OF CAMDEN DEPARTMENT OF UTILITIES</u>		WATER ALLOCATION PERMIT # <u>5302</u>		
STREET ADDRESS <u>Room 419A City Hall</u>		CITY <u>CAMDEN</u>	STATE <u>NJ</u>	
ZIP <u>08103</u>				
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1991</u>		
		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
1. Diversion from own sources				
Surface				
Wells*		<u>406,353</u>	<u>384,347</u>	<u>464,085</u>
Total		<u>406,353</u>	<u>384,347</u>	<u>464,085</u>
2. Received from other systems (see 6)				
3. Delivered to other systems (see 7)				
4. Net diversion for territory served (see 8)		<u>406,353</u>	<u>384,347</u>	<u>464,085</u>
* List individual well usage on reverse side of form				
5. How is diversion determined? If estimated, give basis of estimate <u>CALCULATED BASED ON HOURS OF WELL USAGE AND MEASURED WELL OUTPUT</u>				
6. Systems from which water is received <u>RARITAN - MAGOTHY Aquifer</u>				
7. Systems to which water is delivered <u>CITY OF CAMDEN, EXCLUSIVE OF 11TH AND 12TH WARDS</u>				
8. Municipalities supplied in territory served <u>"</u>				
9. Population supplied in territory served <u>APPROXIMATELY 50,000</u>				
Summer population (if different than above) _____				
10. Number of service connections in territory served <u>13989</u>				
11. Number of service meters in territory served <u>13449</u>				

FRANK AL-GREENE
Name (Please Print)Supervising Program Analyst
TitleFrank Al-Greene
Signature5-21-91
Date

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE		DIR. OF UTILITIES CAMDEN CITY, DIV. OF WATER ROOM 419A, CITY HALL		WATER ALLOCATION PERMIT # 5302		
STREET ADDRESS		CAMDEN NJ 08101		STATE ZIP		
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 19 90		SUMMARY OF DIVERSION IN UNITS OF 1,000		
				1st Month	2nd Month	3rd Month
1. Diversion from own sources		Surface		0	0	0
		Wells		488,782,950	452,130,600	473,728,650
		Total		488,782,950	452,130,600	473,728,650
2. Received from other systems (see 6)				0	0	0
3. Delivered to other systems (see 7)				0	0	0
4. Net diversion for territory served (see 8)				488,782,950	452,130,600	473,728,650
5. How is diversion determined? If estimated, give basis of estimate						
Estimate based upon hours of operation and well tests						
6. Systems from which water is received Raritan-Magothy aquifer						
7. Systems to which water is delivered City of Camden, exclusive of 11th & 12th wards						
8. Municipalities supplied in territory served						
9. Population supplied in territory served approx. 50,000						
Summer population (if different than above)						
10. Number of service connections in territory served 14,435						
11. Number of service meters in territory served 13,714						

Frederick H. Martin, Jr. Director of Utilities
Name (Please Print) Title

Signature

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE City of Camden, Department of Utilities		WATER ALLOCATION PERMIT # 5302	
STREET ADDRESS Room 419A, City Hall		CITY Camden	STATE NJ
		ZIP 08101	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input checked="" type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month	2nd Month
		0	0
1. Diversion from own sources			
Surface			
Wells*		432,063,000	424,408,000
Total		432,063,000	417,834,000
2. Received from other systems (see 6)		0	0
3. Delivered to other systems (see 7)		0	0
4. Net diversion for territory served (see 8)		432,063,000	417,834,000
* List individual well usage on reverse side of form			
5. How is diversion determined? If estimated, give basis of estimate Estimate based upon hours of operation and well tests			
6. Systems from which water is received Raritan-Magothy aquifer			
7. Systems to which water is delivered City of Camden, exclusive of 11th and 12th wards			
8. Municipalities supplied in territory served "			
9. Population supplied in territory served approximately 50,000			
Summer population (if different than above)			
10. Number of service connections in territory served 13,980			
11. Number of service meters in territory served 13,427			

Frederick H. Martin, Jr.

Director of Utilities

Name (Please Print)

Title

Frederick H. Martin, Jr.
Signature

October 2, 1990

Date

WATERA FILE - 11/17/88

NUMBER: 5010

ZONE: 1

NAME: GLOUCESTER CITY

PINELAND: N

STREET: JOHNSON BLVD. & GAUNT ST.

WATERUSE: P

CITY: GLOUCESTER

MGY: 0.0

STATE: NJ

MGM: 93.000

ZIP: 08030-

GPM: 4000

ATTN: W.J. ROACH

PFLOW: 0.0

PHONE: () -

EFDATE: 08/24/1983

CONTACT: W.J. ROACH

EXDATE: 10/31/1997

CTITLE: S

PERMTYPE: G

CPHONE: (609)456-0205

MGD: 3.00

COUNTY1: 07

HEARING: N

COUNTY2:

STAFF:

BASIN1: D

UPDATE: 02/05/1986

BASIN2:

FLAG:

CRITAREA: 2

NOTES1:

NOTES2:

NOTES3:

WSOURCE FILE - 11/17/88

NUMBER:	5010	ZONE:	1
SOURCEID:	3104306	PINELAND:	N
LOCID:	WELL #40	GEO1:	GKMR
USGSUID:	070220	GEO2:	
LAT:	395349	DEPTH:	262
LON:	750651	DOPEN:	221
LLACC:		BOPEN:	261
NJGRID:	3111323	DIAMETER:	
COUNTY:	07	WELLDATE:	/ /
MUN:	14	CAPACITY:	1000
BASIN:	D	MGM:	0.000
CRITAREA:	2	FLAG:	

WSOURCE FILE - 11/17/88

NUMBER:	5010	ZONE:	1
SOURCEID:	3127737	PINELAND:	N
LOCID:	WELL #41	GEO1:	GKMR
USGSUID:	070222	GEO2:	
LAT:	395359	DEPTH:	269
LON:	750654	DOPEN:	225
LLACC:		BOPEN:	265
NJGRID:	3111322	DIAMETER:	
COUNTY:	07	WELLDATE:	/ /
MUN:	14	CAPACITY:	1000
BASIN:	D	MGM:	0.000
CRITAREA:	2	FLAG:	

WSOURCE FILE - 11/17/88

NUMBER:	5010	ZONE:	1
SOURCEID:	3105242	PINELAND:	N
LOCID:	WELL #42	GEO1:	GKMR
USGSUID:	070210	GEO2:	
LAT:	395343	DEPTH:	306
LON:	750652	DOPEN:	
LLACC:		BOPEN:	
NJGRID:	3111326	DIAMETER:	
COUNTY:	07	WELLDATE:	/ /
MUN:	14	CAPACITY:	1000
BASIN:	D	MGM:	0.000
CRITAREA:	2	FLAG:	

WSOURCE FILE - 11/17/88

NUMBER:	5010	ZONE:	1
SOURCEID:	3118822	PINELAND:	N
LOCID:	WELL #43	GEO1:	GKMR
USGSUID:	070516	GEO2:	
LAT:	395346	DEPTH:	260
LON:	750653	DOPEN:	220
LLACC:		BOPEN:	260
NJGRID:	3111326	DIAMETER:	
COUNTY:	07	WELLDATE:	/ /
MUN:	14	CAPACITY:	1000
BASIN:	D	MGM:	0.000
CRITAREA:	2	FLAG:	

WSOURCE FILE - 11/17/89

NUMBER: 5010

ZONE:

SOURCEID: 3104903

PINELAND:

LOCID: REDRILLED

GEO1: GKMR

USGSUID:

GEO2:

LAT:

DEPTH:

LCN:

DOPEN:

LLACC:

BOPEN:

NJGRID:

DIAMETER:

COUNTY:

WELLDATE:

MUN:

CAPACITY:

BASIN:

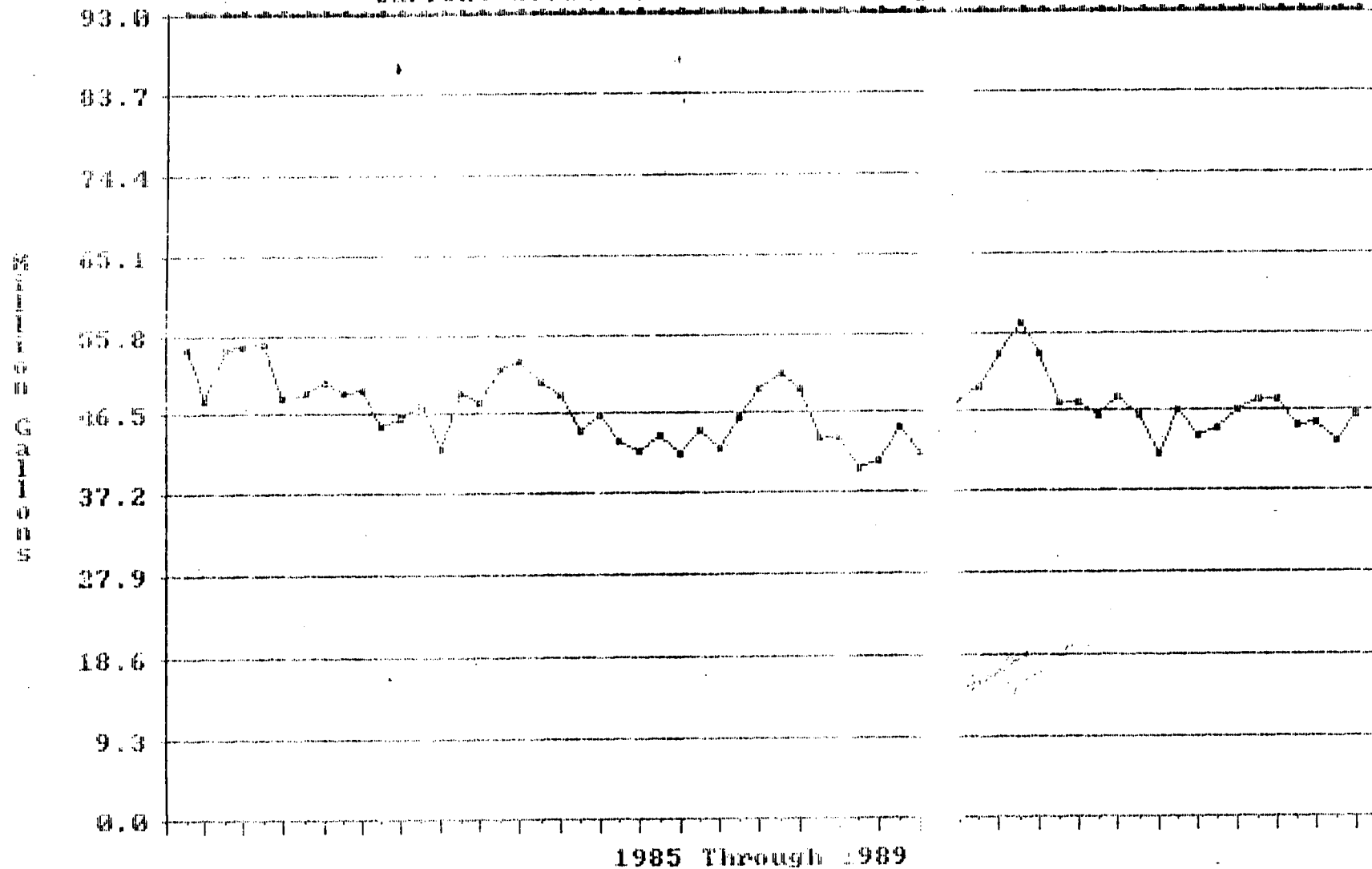
MGM: 0.000

CRITAREA:

FLAG:

WATER USAGE BY GLOUCESTER CITY (5010)

Current Allocation (93.000 MGD)



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE GLOUCESTER CITY WATER DEPARTMENT		WATER ALLOCATION PERMIT # 5010		
STREET ADDRESS JOHNSON BLVD. & GAUNT STS.		CITY GLOUCESTER	STATE NEW JERSEY	
		ZIP 08030		
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990		
		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		JANUARY	FEBRUARY	MARCH
1. Diversion from own sources				
Surface				
Wells 4		45,568	41,544	53,170
Total		45,568	41,544	53,170
2. Received from other systems (see 6)		NONE	NONE	NONE
3. Delivered to other systems (see 7)		NONE	NONE	NONE
4. Net diversion for territory served (see 8)		45,568	41,544	53,170
5. How is diversion determined? If estimated, give basis of estimate				
Master Recording Meter				
6. Systems from which water is received (4) Wells P.R.M. AQUIFER				
7. Systems to which water is delivered				
8. Municipalities supplied in territory served City of Gloucester City				
9. Population supplied in territory served 13,250				
Summer population (if different than above)				
10. Number of service connections in territory served 4,142				
11. Number of service meters in territory served 4,142				

Mr. John Williams
Name (Please Print)

Director of Public Works
Title

Signature

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>
41	31-4903	01-02-90	UNK	53'
40	31-4306	01-02-90	UNK	46'
43	31-18822	02-09-90	UNK	46'
42	31-5242	02-09-90	UNK	66'
41	31-4903	03-10-90	UNK	53'
40	31-4306	03-10-90	UNK	47'

* Measurements in feet below sea level.

CHLORIDE ANALYSIS**

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
42 31-5242	01-14-90	25.0 mg/l
# 43 31-18822	02-16-90	25.0 mg/l
# 42 31-5242	03-15-90	19.5 mg/l

** and/or other monitored contaminants

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
- Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
- Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
- Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE GLOUCESTER CITY WATER DEPARTMENT		WATER ALLOCATION PERMIT # 5010	
STREET ADDRESS Johnson Blvd. & Caunt St., Gloucester City, New Jersey 08030		CITY	STATE ZIP
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input checked="" type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month	2nd Month
		APRIL	MAY
		47,931	48,879
		47,931	48,879
		NONE	NONE
		NONE	NONE
		47,931	48,879
1. Diversion from own sources		3rd Month	
Surface		JUNE	
Wells 4		49,683	
Total 4		49,683	
2. Received from other systems (see 6)		NONE	
3. Delivered to other systems (see 7)		NONE	
4. Net diversion for territory served (see 8)		49,683	
5. How is diversion determined? If estimated, give basis of estimate			
Master Recording Meter			
6. Systems from which water is received (4) Wells F.R.M. AQUIFER			
7. Systems to which water is delivered			
8. Municipalities supplied in territory served City of Gloucester City			
9. Population supplied in territory served 13,250			
Summer population (if different than above)			
10. Number of service connections in territory served 4,142			
11. Number of service meters in territory served 4,142			

Mr. John Williams
Name (Please Print)

Director of Public Works
Title

John Williams
Signature

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

5010

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>
0	31-4306	04-26-90	UNK	46'
43	31-18822	04-26-90	UNK	46'
1	31-4903	05-09-90	UNK	52'
42	31-5242	05-09-90	UNK	66'
0	31-4306	06-15-90	UNK	46'
3	31-18822	06-15-90	UNK	46'

Measurements in feet below sea level.

CHLORIDE ANALYSIS**

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
41 31-4903	04-26-90	21.0 mg/l
31-4306	05-29-90	23.5 mg/l
42 - 31-5242	06-22-90	32.8 mg/l

Jul 10 '90

and/or other monitored contaminants

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE Gloucester City Water Department		WATER ALLOCATION PERMIT # 5010											
STREET ADDRESS Johnson Blvd. & Gaunt St., Gloucester City, New Jersey		CITY	STATE ZIP 08050										
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990											
<table border="1"><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td>Wells* 4</td></tr><tr><td>Total 4</td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr></table>		1. Diversion from own sources	Surface	Wells* 4	Total 4	2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface										
		Wells* 4											
		Total 4											
		2. Received from other systems (see 6)											
		3. Delivered to other systems (see 7)											
4. Net diversion for territory served (see 8)													
1st Month JULY	2nd Month AUGUST	3rd Month SEPTEMBER											
52,783	48,093	46,046											
52,783	48,093	46,046											
NONE	NONE	NONE											
NONE	NONE	NONE											
52,783	48,093	46,046											

* List individual well usage on reverse side of form

5. How is diversion determined? If estimated, give basis of estimate
Master Recording Meter

6. Systems from which water is received
E.R.M. AQUEDUCT

7. Systems to which water is delivered

8. Municipalities supplied in territory served
City of Gloucester City

9. Population supplied in territory served
13,250

Summer population (if different than above)

10. Number of service connections in territory served
4,144

11. Number of service meters in territory served
4,144

Mr. John C. Williams

Director of Public Works

Name (Please Print)

Title

Signature

Date

10-1-90

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
41	31-4903	07-20-90	UNK	52'	
40	31-4306	07-20-90	UNK	46'	
42	31-5242	08-04-90	UNK	66'	
43	31-18822	08-04-90	UNK	46'	
41	31-4903	09-12-90	UNK	53'	
40	31-4306	09-12-90	UNK	47'	

* Depth to Water in Feet

* Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
42 31-5242	07-27-90	28.0 mg/l
43 31-18822	08-01-90	25.0 mg/l
41 31-4903	09-11-90	25.0 mg/l

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
40	31-4306	12.961	9.975	9.662
41	31-4903	11.606	10.816	11.271
42	31-5242	9.372	9.135	3.979
43	31-18822	11.143	11.443	9.953

Oct 3 '90

***Units of 1,000

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water-from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE Gloucester City Water Department		WATER ALLOCATION PERMIT # 5010		
STREET ADDRESS Johnson Blvd. & Gaunt St., Gloucester City, New Jersey		CITY Gloucester City	STATE 08030	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31		FOR THE YEAR: 1990		
1. Diversion from own sources Surface Wells* 4 Total 4 2. Received from other systems (see 6) 3. Delivered to other systems (see 7) 4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month OCTOBER	2nd Month NOVEMBER	3rd Month DEC EMBER
		53,753	51,420	52,757
		53,753	51,420	52,757
		NONE	NONE	NONE
		NONE	NONE	NONE
		53,753	51,420	52,757
5. How is diversion determined? If estimated, give basis of estimate Master Recording Meter				
6. Systems from which water is received (4) Wells P.R.M. AQUIFER				
7. Systems to which water is delivered				
8. Municipalities supplied in territory served City of Gloucester City				
9. Population supplied in territory served 13,250				
Summer population (if different than above)				
10. Number of service connections in territory served 4,144				
11. Number of service meters in territory served 4,144				

* List individual well usage on reverse side of form

Mr. John C. Williams

Director of Public Works

Name (Please Print)

Title

Signature

Date

John C. Williams Jan 4 1991

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
43	31-18822	10-25-90	UNK	46'	
41	31-4903	10-25-90	UNK	52'	
40	31-4306	11-04-90	UNK	47'	
42	31-5242	11-04-90	UNK	66'	
40	31-4306	12-18-90	UNK	41'	
43	31-18822	12-18-90	UNK	48'	

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
43 31-18822	10-23-90	25.0 mg/l
42 31-5242	11-16-90	20.5 mg/l
41 31-4903	11-20-90	24.5 mg/l

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
40	31-4306	10.653	10,070	10.525
41	31-4903	10.489	2,232	29.531
42	31-5242	7.868	3,420	.769
43	31-18822	11.008	32,366	1.181

Jan 8 '91

***Units of 1,000

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

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2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE Gloucester City Water Department		WATER ALLOCATION PERMIT # 5210		
STREET ADDRESS Johnson Blvd & Caunt St., Gloucester City, New Jersey		CITY Gloucester City	STATE NJ ZIP 08030	
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1991		
1. Diversion from own sources Surface Wells* 4 Total 4 2. Received from other systems (see 6) 3. Delivered to other systems (see 7) 4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month JANUARY	2nd Month FEBRUARY	3rd Month MARCH
		57,808	53,399	55.005
		57,808	53,399	55.005
		NONE	NONE	NONE
		NONE	NONE	NONE
		57,808	53,399	55.005
5. How is diversion determined? If estimated, give basis of estimate Master Recording Meter				
6. Systems from which water is received (4) Wells F.P.M. AQUIFER				
7. Systems to which water is delivered				
8. Municipalities supplied in territory served City of Gloucester City				
9. Population supplied in territory served 13,250				
Summer population (if different than above)				
10. Number of service connections in territory served 4,144				
11. Number of service meters in territory served 4,144				

* List individual well usage on reverse side of form

John C. Williams
Name (Please Print)

Director of Public Works
Title

Signature

Date

4-3-91

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
40	31-4306	01-25-91	UNK	47'	
41	31-4903	01-27-91	UNK	52'	
43	31-18822	02-04-91	UNK	46'	
42	31-5242	02-04-91	UNK	66'	
40	31-4306	03-20-91	UNK	48'	
41	31-4903	03-22-91	UNK	52'	

* Depth to Water in Feet

Measurements in Feet from Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
40 31-4306	01-14-91	23.5 mg/l
43 31-18822	02-15-91	25.0 mg/l
42 31-5242	03-13-91	25.0 mg/l

16.6 mg/l

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
40	31-4306	2.975	.813	7.471
41	31-4903	4.048	7.338	5.413
42	31-5242	12.388	.570	1.960
43	31-18822	20.252	34.568	29.715

***Units of 1,000

DWR-017 B

NUMBER:	5152	ZONE:	1
NAME:	HADDONFIELD BOROUGH	PINELAND:	N
STREET:	242 KINGS HIGHWAY EAST	WATERUSE:	P
CITY:	HADDONFIELD	MGY:	611.0
STATE:	NJ	MGM:	64.500
ZIP:	08033-	GPM:	2230
ATTN:	HOWARD HEMPHILL (WATER PL	PFLOW:	0.0
PHONE:	(609)429-4700	EFDATE:	02/26/1990
CONTACT:	JOHN H. MARTER	EXDATE:	09/30/1993
OTITLE:	0	PERMTYPE:	G
CPHONE:	(609)429-0183	MSD:	2.08
COUNTY1:	07	HEARING:	N
COUNTY2:		STAFF:	JGG
BASIN1:	DSAL	UPDATE:	03/22/1990
BASIN2:		FLAG:	
CRITAREA:	2		

NOTES1:

NOTES2:

NOTES3:

WSOURCE FILE - 03/22/90

NUMBER:	5152	PINELAND:	N
SOURCEID:	5100062	ELEV:	
LOCID:	2	ELEVACC:	
USGSUID:	070301	DEPTH:	577
LAT:	395324	DOPEN:	523
LON:	750138	BOPEN:	572
LLACC:		GEO1:	GKMR
NJGRID:	3112318	GEO2:	
COUNTY:	07	DIAMETER:	
MUN:	17	WELLDATE:	/ /
BASIN:	D	CAPACITY:	1000
CRITAREA:	2	MGH:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 03/22/90

NUMBER:	5152	PINELAND:	N
SOURCEID:	3109694	ELEV:	
LOCID:	7	ELEVACC:	
USGSUID:	070525	DEPTH:	590
LAT:	395317	DOPEN:	500
LON:	750142	BOPEN:	550
LLACC:		GEO1:	GKMR
NJGRID:	3112318	GEO2:	
COUNTY:	07	DIAMETER:	10
MUN:	17	WELLDATE:	06/14/1956
BASIN:	DSAL	CAPACITY:	1000
CRITAREA:	2	MGH:	0.000
ZONE:	1	FLAG:	

NUMBER: 5152

PINELAND: N

SOURCEID: 3105108

ELEV:

LOCID: 6

ELEVACC:

USGSUID: 070302

DEPTH: 380

LAT: 395404

DOPEN: 307

LON: 750202

BOPEN: 372

LLACC:

GEO1: GKMR

NJGRID: 3102899

GEO2:

COUNTY: 07

DIAMETER: 12

MUN: 17

WELLDATE: 06/01/1967

BASIN: DSAL

CAPACITY: 1000

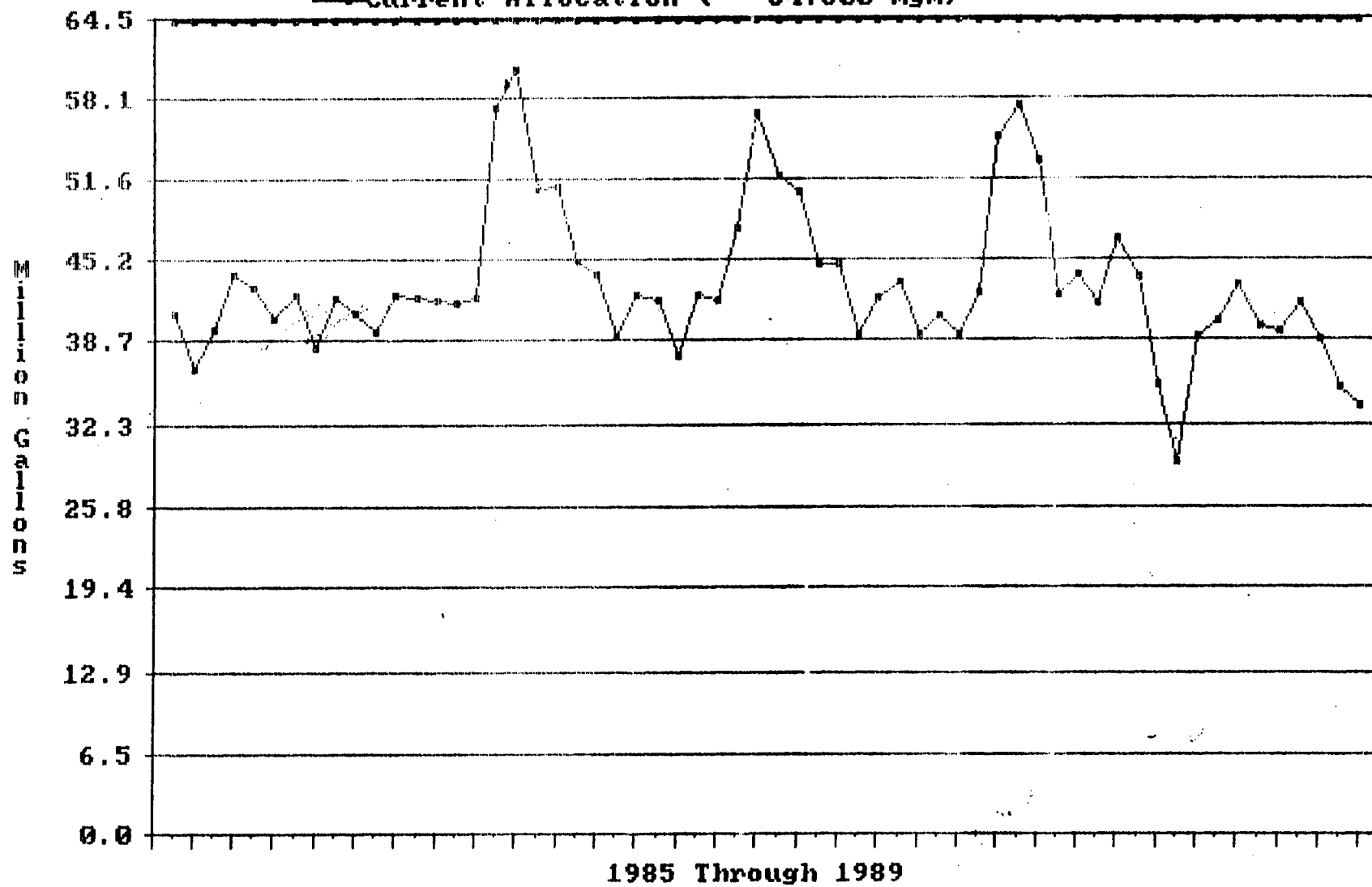
CRITAREA: 2

MCM: 0.000

ZONE: 1

FLAG:

WATER USAGE BY HADDONFIELD BOROUGH (5152)
—●— Current Allocation (64.500 mgm)



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 DIVISION OF WATER RESOURCES
 BUREAU OF WATER ALLOCATION
 CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

ENTERED

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE		HADDONFIELD BOROUGH		5152		WATER ALLOCATION PERMIT #	
STREET ADDRESS		242 KINGS HIGHWAY EAST				DATE	
		HADDONFIELD				ZIP	
		NJ 08033					
		XXXXXX XXXX XXXX					
FOR THE QUARTER ENDING:		FOR THE YEAR:		SUMMARY OF DIVERSION IN UNITS OF 1,000			
<input checked="" type="checkbox"/> March 31		<input type="checkbox"/> Sept. 30					
<input type="checkbox"/> June 30		<input type="checkbox"/> Dec. 31					
		1990					
1. Diversion from own sources		Surface		1st Month	2nd Month	3rd Month	
		<u>Wells</u>		January	February	March	
		Total		37,445,300	32,732,600	36,461,300	
2. Received from other systems (see 6)							
3. Delivered to other systems (see 7)							
4. Net diversion for territory served (see 8)				37,445,300	32,732,600	36,461,300	
5. How is diversion determined? If estimated, give basis of estimate <u>BIF meters, propeller, flow meter - 250 G.P.M. orifice plate</u>							
6. Systems from which water is received <u>None</u>							
7. Systems to which water is delivered <u>None</u>							
8. Municipalities supplied in territory served <u>Haddonfield, Tavistock, Barrington, Haddon Hts., Haddon Twp.</u>							
9. Population supplied in territory served <u>12,257 (7-86)</u>							
Summer population (if different than above) <u>-</u>							
10. Number of service connections in territory served <u>4,497</u>							
11. Number of service meters in territory served <u>4,497</u>							

Howard Hemphill
 Name (Please Print)

Supt. of Public Works
 Title

Howard Hemphill
 Signature

STATIC WATER LEVEL DATA

Method Used — ☐ At Scope ☒ Air Line ☐ Tape (Check appropriate box)

Well No.	Well Permit No.	Date Taken		
type	#N-6-56-65	1-4-9-15-23	2-7-13-21-24	3-4-13-20-27
lon	#31-2570	1-27	2-6-28	3-8-16-21-28
Stern	#51-62	-	-	-
ke St.	#31-5108	1-1-8-15-22-29	2-5-12-19-26	3-4-12-19-26
blm	#31-9694	1-3-10-16-22	2-5-12-20-25	3-5-12-19-29

type	#N-6-56-65
lon	#31-2570
Stern	#51-62
ke St.	#31-5108
blm	#31-9694

JANUARY	FEBRUARY	MARCH
19,370,300	17,805,700	12,984,500
4,418,000	4,141,100	11,391,300
-	-	-
497,000	990,800	3,575,000
13,160,000	9,795,000	9,007,000
37,445,300	32,732,600	36,461,300

on Well
e Street
tern Well
Holm Well
ne Well

B.I.F. Meter
B.I.F. Meter
250 GPM orifice plate
Propeller flow meter
Propeller flow meter

Elevations	Air Line	feet below			
		January	February	March	sea level
74,675	200'	Static			
24,695	180'	Pumping			
17,432	131'	Static			
51,420	250'	Pumping			
24,175	191'	Static			
		Pumping			
		Static			
		Pumping			
		Static			
		Pumping			

January	February	March	sea level
144.25	143.75	142.0	68.66
163.25	162.25	160.75	87.41
121.5	122.50	123.25	97.68
140	142.0	142.50	116.60
out of service			
130	130	128	77.91
143	143.75	148.75	93.74
130.50	130.75	130.50	106.40
140.25	140.75	140.50	116.32

ORIDE ANALYSIS**

Permit No. Date Taken Analysis Results

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE HADDONFIELD BOROUGH		5152		PERMIT ALLOCATION PERMIT #	
STREET ADDRESS 242 KINGS HIGHWAY EAST HADDONFIELD NJ 08033 XXXXXX XXXXXXXX				DATE	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input checked="" type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990		SUMMARY OF DIVERSION IN UNITS OF 1,000	
				1st Month April	2nd Month May
					3rd Month June
1. Diversion from own sources		Surface			
		Wells			
		Total		36,966,100	40,181,700
2. Received from other systems (see 6)				-	-
3. Delivered to other systems (see 7)				-	-
4. Net diversion for territory served (see 8)					
5. How is diversion determined? If estimated, give basis of estimate <u>BIF meters, propeller,</u> <u>flow meter - 250 G.P.M. orifice plate</u>					
6. Systems from which water is received <u>None</u>					
7. Systems to which water is delivered <u>None</u>					
8. Municipalities supplied in territory served <u>Haddonfield, Tavistock, Barrington, Haddon Heights, Haddon Twp.</u>					
9. Population supplied in territory served <u>12,257 (7-86)</u>					
Summer population (if different than above) <u>-</u>					
10. Number of service connections in territory served <u>4,497</u>					
11. Number of service meters in territory served <u>4,497</u>					

Howard Hemphill
Name (Please Print)

Supt. of Public Works
Title

Howard Hemphill
Signature

THE WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

Well	Well Permit No.	Date Taken	Date Taken	Date Taken
ync	#N-6-56-65	4-4-12-17-27	5-5-11-15-22	6-4-14-21-28
lon	#31-2570	4-2-11-19	5-3-8-16-23	6-7-13-20-30
stern	#51-62	-	-	-
ce St.	#31-5108	4-9-16-23-30	5-7-14-21-28	6-3-11-18-25
holm	#31-9694	4-3-10-18-26-28	5-4-7-14-24	6-6-12-22-29

ync #N-6-56-65
lon #31-2570
stern #51-62
ce St. #31-5108
holm #31-9694

April	May	June
20,948,100	19,508,500	19,372,700
7,621,500	8,173,200	7,336,400
-	-	-
,886,000	1,173,000	1,646,000
7,510,500	11,327,000	13,595,000
36,966,100	40,181,700	41,950,100

lon Well Propeller flow meter
ce Street U.I.R. Meter
stern Well 250 GPH orifice plate
holm Well Propeller flow meter
ync Well Propeller flow meter

Well	Elevations	Air Line		feet below			
				Apr.	May	June	sea level
ync	74.675	200'	Static	143.75	144.75	143.75	69.40
lon	24.895	180'	Pumping	162.25	163.00	162.50	87.90
stern	17.432	131'	Static	124.33	125.75	124.50	99.96
ce St.	51.420	JUL 18 1960	Pumping	144.00	142.75	143.00	118.35
holm Well	24.175	191'	Static	-	-	-	-
			Pumping	127.60	126.75	127.00	75.69
			Static	143.80	150.00	150.00	96.51
			Pumping	131.00	130.50	130.25	106.40
			Static	140.40	140.75	139.75	116.12

ORIDE ANALYSIS**

Permit No.

Date Taken

Analysis Results.

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 DIVISION OF WATER RESOURCES
 BUREAU OF WATER ALLOCATION
 CN 029, TRINTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

HADDONFIELD BOROUGH
 242 KINGS HIGHWAY EAST
 HADDONFIELD
 NJ 08033
 XXXX XXX XXXXXX

5152

NAME OF PERMITTEE		TER ALLOCATION PERMIT #	
STREET ADDRESS		DATE	
FOR THE QUARTER ENDING:		FOR THE YEAR:	
<input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		1990	
1. Diversion from own sources		SUMMARY OF DIVERSION IN UNITS OF 1,000	
Surface		1st Month	2nd Month
Wells		JULY	AUGUST
Total		50,089,553	43,077,388
			42,887,856
2. Received from other systems (see 6)		-	-
3. Delivered to other systems (see 7)		-	-
4. Net diversion for territory served (see 8)			
5. How is diversion determined? If estimated, give basis of estimate		BIF meters, propeller, flow meter - 250 G.P.M. orifice plate	
6. Systems from which water is received		None	
7. Systems to which water is delivered		None	
8. Municipalities supplied in territory served		Haddonfield, Tavistock, Barrington, Haddon Heights, Haddon Twp.	
9. Population supplied in territory served		11,515 (1990 Census)	
Summer population (if different than above)		-	
10. Number of service connections in territory served		4,497	
11. Number of service meters in territory served		4,497	

Howard Hemphill

Name (Please Print)

Supt. of Public Works

Title

Howard Hemphill
 Signature

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

Well No.	Well Permit No.	Date Taken
Layne	#W-6-56-65	7-3-9-16-25 8-2-7-15-20 9-4-10-17
Union	#31-2570	7-2-11-18-24 8-3-9-17-23 9-5-11-19
Cistern	#51-62	- - -
Lake St.	#31-5108	7-2-9-16-23 8-6-13-20-27 9-3-10-17-23
7 Holm	#31-9694	7-6-10-17-22 8-1-8-16-23 9-3-13-18

Well No.	Well Permit No.
Layne	#W-6-56-65
Union	#31-2570
Cistern	#51-62
Lake St.	#31-5108
7 Holm	#31-9694

JULY	AUGUST	SEPTEMBER
19,755,528	16,296,696	15,188,004
6,413,634	6,488,532	7,474,032
-	-	-
2,803,000	2,206,000	969,000
21,117,391	18,086,160	19,256,820

Union Well
 Lake Street
 Cistern Well
 7 Holm Well
 Layne Well

B.I.F. Meter
 B.I.F. Meter
 250 GPH orifice plate
 Propeller flow meter
 Propeller flow meter

Well	Elevations	Air Line
Layne	74,675	200'
Union	24,095	180'
Cistern	17,432	131'
Lake St.	51,420	250'
7 Holm Well	24,175	121'

feet below
 July August Sept. sea level

142.00	143.25	144.00	68.41
156.50	161.00	162.67	85.39
123.75	123.50	126.33	99.64
143.00	141.75	143.00	117.69
out of service	out of service	out of service	out of service
128.80	126.50	125.00	75.25
155.60	153.00	150.00	101.45
131.50	130.50	130.67	106.72
140.75	139.50	140.33	116.02

CHLORIDE ANALYSIS

Well Permit No.

Date Taken

Analysis Results

DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE: <u>HADDONFIELD BOROUGH 5152</u> <u>555 CENTRE STREET</u> <u>HADDONFIELD, NJ 08033-</u> STREET ADDRESS: <u>ATTN: [REDACTED] (WATER FL</u>		WATER ALLOCATION PERMIT # _____ STATE _____ ZIP _____	
--	--	--	--

FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31	FOR THE YEAR: <u>1990</u>	SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month October	2nd Month November	3rd Month December
1. Diversion from own sources Static				
Wells		35,063,149	33,432,700	32,004,824
Total		35,063,149	33,432,700	32,004,824
2. Received from other systems (see 6)		-----	-----	-----
3. Delivered to other systems (see 7)		-----	-----	-----
4. Net diversion for territory served (see 8)		-----	-----	-----

5. How is diversion determined? If estimated, give basis of estimate Propeller Flow Meters and one 250 GPM Orifice Plate

6. Systems from which water is received None

7. Systems to which water is delivered None

8. Municipalities supplied in territory served Haddonfield, Tavistock, Barrington, Haddon Heights
Haddon Twp.

9. Population supplied in territory served 11,515 (1990 census)

Summer population (if different than above) ----

10. Number of service connections in territory served 4,497

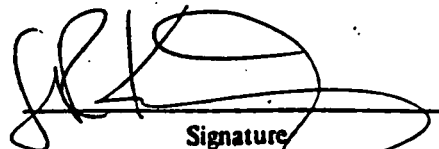
11. Number of service meters in territory served 4,497

Joseph R. Keating

Name (Please Print)

Dir. of Utilities

Title


Signature

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>
Layne	W-6-56-65	10/13 11/13 12/13	74.675	70.32
Rulon	31-2570	10/13 11/14 12/14	24.895	106.10
Holm	31-9694	10/11 11/12 12/10	24.175	106.82
Lake St.	31-5108	10/15 11/12 12/10	51.420	73.58
Cistern	51-62	OUT OF SERVICE	17.432	-----

Measurements in feet below sea level.

CHLORIDE ANALYSIS**

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
------------------------	-------------------	-------------------------

and/or other monitored contaminants

APR 11 '91

DEPT. OF THE ENVIRONMENT
DIVISION OF WATER RESOURCES

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, NJ. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE Haddonfield Borough		WATER ALLOCATION PERMIT # 5152	
STREET ADDRESS 242 Kings Hwy. East		CITY Haddonfield	STATE N.J.
		ZIP 08033	
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1991	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month January	2nd Month February
		3rd Month March	
1. Diversion from own sources		31,476.4	28,358.9
Wells*		30,836.6	
Total		31,476.4	28,358.9
2. Received from other systems (see 6)		30,836.6	
3. Delivered to other systems (see 7)		-----	-----
4. Net diversion for territory served (see 8)		-----	-----
		31,476.4	28,358.9
5. How is diversion determined? If estimated, give basis of estimate		30,836.6	
250 GPM Orifice Plate		* List individual well usage on reverse side of form Propeller Flow Meters and one	
6. Systems from which water is received		None	
7. Systems to which water is delivered		None	
8. Municipalities supplied in territory served		Haddonfield, Tavistock, Barrington, Haddon Heights, Haddon Twp.	
9. Population supplied in territory served		11,515 (1990 census)	
Summer population (if different than above)		-----	
10. Number of service connections in territory served		4,497	
11. Number of service meters in territory served		4,497	

Joseph R. Keating

Name (Please Print)

Dir. of Utilities

Title

Signature

4/17/91

Date

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
# 1.	W-6-56-65	2/2	74.675	143	68.32
# 5.	31-2570	2/2	24.895	126	101.10
# 6.	31-5108	2/4	51.420	124	72.58
# 7.	31-9694	2/3	24.175	131	106.82
# 2.	51.62	Out of Service	17.431		

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
------------------------	-------------------	-------------------------

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
# 1.	W-6-56-65	8,663.3	14,076.8	13,102.7
# 5.	31-2570	4,979.0	10,288.0	7,067.0
# 6.	31-5108	780.9	2,131.3	1,100.7
# 7.	31-9694	17,053.2	1,862.8	9,566.2
# 2.	51-62	Out of Service		

APR 23 '97

0056

***Units of 1,000

DWR-017 B

WATERA FILE - 01/17/89

NUMBER: 5209
NAME: COLLINGSWOOD BOROUGH
STREET: 678 HADDON AVENUE

CITY: COLLINGSWOOD
STATE: NJ

ZIP: 08108-

ATTN: JOHN MEIER

PHONE: (609)854-2332

PHONE:

PHONE:

PHONE: (609)854-2332

COUNTY1: 07

COUNTY2:

BASIN1: D

BASIN2:

WRTAREA: 2

ZONE: 1

PINELAND: N

WATERUSE: P

MBY: 643.7

MBM: 155.000

EPH: 7020

PFLOW: 2.4

EFDATE: 01/05/1989

LYDATE: 03/01/1992

PERMIT: L

MGD: 5.00

HEARING: N

STAFF: BAC

UPDATE: 01/17/1989

FLAG:

NOTES1:

NOTES2:

NOTES3:

WSOURCE FILE - 01/17/89

NUMBER:	5209	ZONE:	1
SOURCEID:	3104053	PINELAND:	N
UCID:	2R	GEO1:	GKMR
DESID:	070176	GEO2:	
WT:	395519	DEPTH:	281
UN:	750432	DOPEN:	245
LLACC:		BOPEN:	278
GRID:	3102729	DIAMETER:	12
COUNTY:	07	WELLDATE:	06/07/1960
WELL:	12	CAPACITY:	800
SIN:	D	MGM:	0.000
CRITAREA:	2	FLAG:	

WSOURCE FILE - 01/17/89

NUMBER:	5209	ZONE:	1
SOURCEID:	3104054	PINELAND:	N
UCID:	3R	GEO1:	GKMR
DESID:	070178	GEO2:	
WT:	395522	DEPTH:	290
UN:	750432	DOPEN:	257
LLACC:		BOPEN:	287
GRID:	3102725	DIAMETER:	12
COUNTY:	07	WELLDATE:	06/07/1960
WELL:	12	CAPACITY:	800
SIN:	D	MGM:	0.000
CRITAREA:	2	FLAG:	

WSOURCE FILE - 01/17/89

NUMBER: 5209 ZONE: 1
 SOURCEID: 5100030 PINELAND: N
 LOCID: 4 GEO1: GKMR
 WEGUID: 070177 GEO2:
 LAT: 395521 DEPTH: 304
 LON: 750435 DOPEN: 262
 LLADD: BOPEN: 292
 WJGRID: 3102737 DIAMETER: 10
 COUNTY: 07 WELLDATE: 02/16/1950
 MUN: 12 CAPACITY: 650
 BASIN: D MGM: 0.000
 CRITAREA: 2 FLAG:

WSOURCE FILE - 01/17/89

NUMBER: 5209 ZONE: 1
 SOURCEID: 3100079 PINELAND: N
 LOCID: 5 GEO1: GKMR
 WEGUID: GEO2:
 LAT: 395521 DEPTH: 311
 LON: 750439 DOPEN: 266
 LLADD: BOPEN: 306
 WJGRID: 3102737 DIAMETER: 12
 COUNTY: 07 WELLDATE: 02/16/1950
 MUN: 12 CAPACITY: 650
 BASIN: D MGM: 0.000
 CRITAREA: 2 FLAG:

WSOURCE FILE - 01/17/89

NUMBER:	5209	ZONE:	
SOURCEID:	5100001	PINELAND:	
LOCID:	6	GE01:	SKMR
USBLID:	070179	GE02:	
LAT:	395526	DEPTH:	298
LON:	750424	DOPEN:	275
LLACC:		DOPEN:	275
NUGRID:	3102737	DIAMETER:	12
COUNTY:	07	WELLDATE:	03/31/1965
MUN:	12	CAPACITY:	1000
BASIN:	D	MEM:	0.000
CRITAREA:	2	FLAG:	

WSOURCE FILE - 01/17/89

NUMBER:	5209	ZONE:	1
SOURCEID:	51004799	PINELAND:	
LOCID:	7	GE01:	SKMR
USBLID:	070179	GE02:	
LAT:	395521	DEPTH:	312
LON:	750439	DOPEN:	219
LLACC:		BOPEN:	312
NUGRID:	3102792	DIAMETER:	12
COUNTY:	07	WELLDATE:	03/31/1965
MUN:	12	CAPACITY:	1000
BASIN:	D	MEM:	0.000
CRITAREA:	2	FLAG:	

WSOURCE FILE - 01/17/89

NUMBER:	5209	ZONE:	1
SOURCEID:	3104777	PINELAND:	N
LOCID:	B	GEO1:	SKMR
USGSUID:	070171	GEO2:	
LAT:	395421	DEPTH:	318
LON:	780514	DOPEN:	224
LLACL:		BOPEN:	313
NJBRID:	3102791	DIAMETER:	12
COUNTY:	33	WELLDATE:	01/17/1988
MUN:	01	CAPACITY:	0.000
BASIN:	D	MGM:	0.000
CRITAREA:	2	FLAG:	

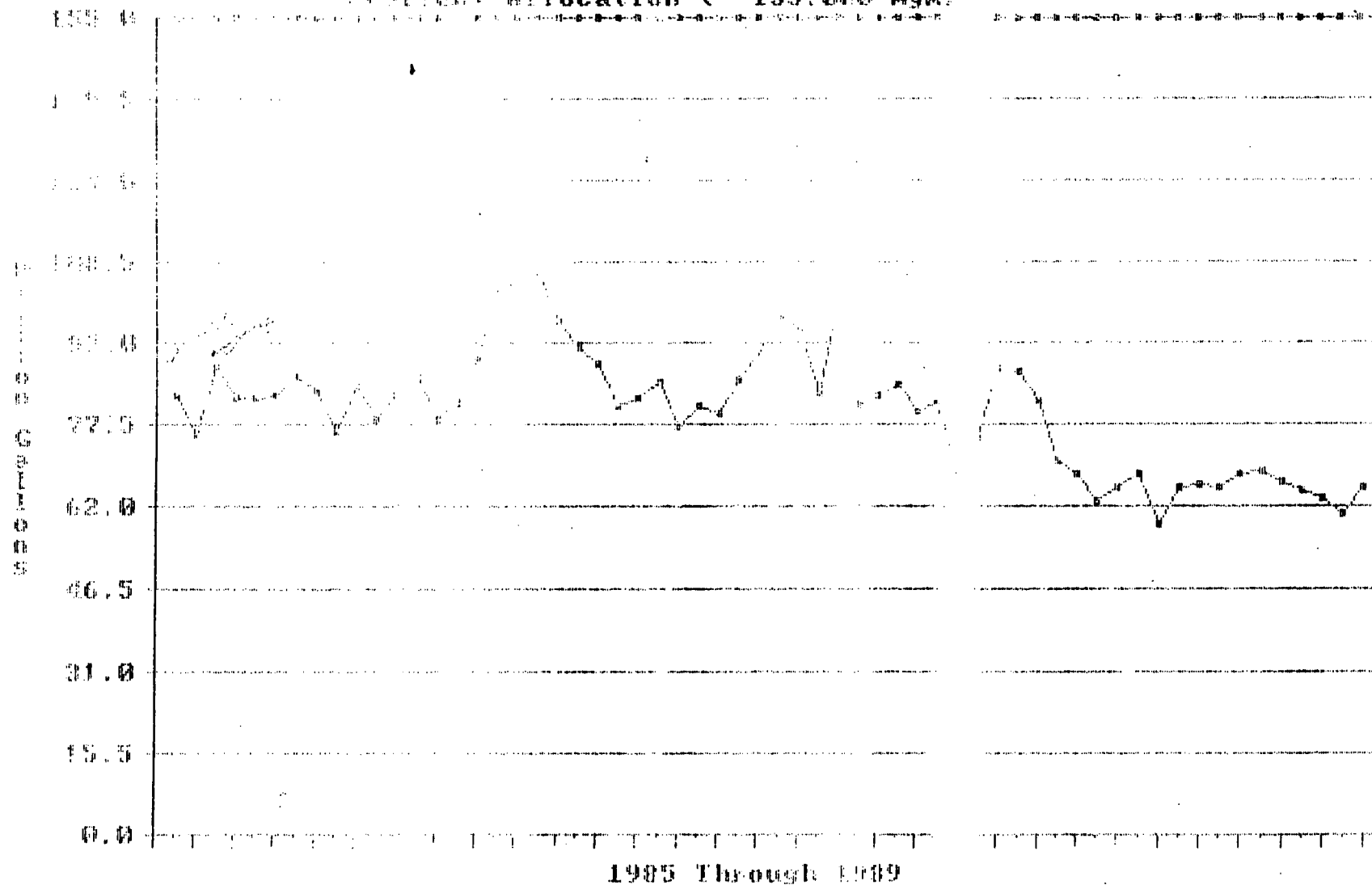
WSOURCE FILE - 01/17/89

NUMBER:	5209	ZONE:	4
SOURCEID:	ELIKTON POND	PINELAND:	N
LOCID:		GEO1:	
USGSUID:		GEO2:	
LAT:	393318	DEPTH:	
LON:	752225	DOPEN:	
LLACL:	F	BOPEN:	
NJBRID:	3043561	DIAMETER:	
COUNTY:	33	WELLDATE:	/ /
MUN:	01	CAPACITY:	
BASIN:	D	MGM:	0.000
CRITAREA:		FLAG:	

WSOURCE FILE - 01/17/89

NUMBER:	5209	ZONE:	3
SOURCEID:	NEWTON CREEK	PINELAND:	N
LOGID:		GEO1:	SDLOO
LOGSUID:		GEO2:	
LAT:	395425	DEPTH:	
LDN:	730515	DOPEN:	
LLADD:		BOPEN:	
WBRID:	3102781	DIAMETER:	
WLN:	07	WELLDATE:	
WTD:	12	CAPACITY:	1000
WGRIN:	D	WGM:	44.640
CRITAREA:	1	FLAG:	

WATER USAGE BY COLLINGSWOOD BOROUGH (5209) Current Allocation (155,000 mgm)



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

COLLINGSWOOD BOROUGH

5209

NAME OF PERMITT

678 HADDON AVENUE

COLLINGSWOOD, NJ 08108-

ATTN: JOHN MEIER

WATER ALLOCATION PERMIT #

STREET ADDRESS

STATE

ZIP

FOR THE QUARTER ENDING:

FOR THE YEAR:

- ☒ March 31 ☐ Sept. 30
☐ June 30 ☐ Dec. 31

1990

SUMMARY OF DIVERSION IN UNITS OF 1,000

1st Month

2nd Month

3rd Month

1. Diversion from own sources

Surface

Wells

Total

2. Received from other systems (see 6)

3. Delivered to other systems (see 7)

4. Net diversion for territory served (see 8)

5. How is diversion determined? If estimated, give basis of estimate All Wells metered by turbine meters (Refer to sheet)

6. Systems from which water is received _____

7. Systems to which water is delivered _____

8. Municipalities supplied in territory served Collingswood, Wood Lynne, Haddon Twp

9. Population supplied in territory served 21,000

Summer population (if different than above) _____

10. Number of service connections in territory served 5,912

11. Number of service meters in territory served 5,908

John A Meier
Name (Please Print)

Superintendent
Title

John A Meier
Signature

4-16-90
Date

STATIC WATER LEVEL DATA

Method Used — ☒ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Static Level*</u>	<u>Total Head**</u>
	31-79	3-27-90		90'	
	31-4053	3-31-90		53'	
	31-4054	3-31-90		64'	
	51-30	3-31-90		61'	
	51-31	3-31-90		84'	
	31-4799	3-14-90		56'	
	31-4797	3-14-90		48'	

* Depth to Water in Feet
** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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All monitored analysis enclosed

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>Borough of Collingswood</u>		WATER ALLOCATION PERMIT # <u>5209</u>													
STREET ADDRESS <u>678 Haddon Ave</u>		CITY <u>Collingswood</u>	STATE <u>N.J.</u>												
ZIP <u>-08108</u>															
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input checked="" type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>													
<table border="0"><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td></td><td><u>Wells*</u></td></tr><tr><td></td><td>Total</td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr></table>		1. Diversion from own sources	Surface		<u>Wells*</u>		Total	2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface												
			<u>Wells*</u>												
			Total												
		2. Received from other systems (see 6)													
3. Delivered to other systems (see 7)															
4. Net diversion for territory served (see 8)															
		1st Month	2nd Month	3rd Month											
		<u>59,033</u>	<u>65,032</u>	<u>68,144</u>											

5. How is diversion determined? If estimated, give basis of estimate
All Wells metered

6. Systems from which water is received _____

7. Systems to which water is delivered _____

8. Municipalities supplied in territory served Collingswood, Woodlynne, Haddon Twp

9. Population supplied in territory served 21,000

Summer population (if different than above) _____

10. Number of service connections in territory served 5,897

11. Number of service meters in territory served 5,909

* List individual well usage on reverse side of form

Name (Please Print)

Title

Signature

Date

John A Meier Superintendent John Meier 7-28-90

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
1	31-79	5-31-90		91'	
2	31-4053	6-30-90		71'	
3	31-4054	6-30-90		65'	
4	51-30	6-30-90		68'	
5	51-31	6-30-90		66'	
6	31-4799	5-21-90		51'	
7	31-4797	5-21-90		49'	

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSISWell Permit No.Date TakenAnalysis Results

Analysis Enclosed

Aug 3 '90

INDIVIDUAL WELL USAGE***Well No.Well Permit No.Month 1Month 2Month 3

See Sheet

***Units of 1,000

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>Borough of Collingswood</u>		WATER ALLOCATION PERMIT # <u>5209</u>													
STREET ADDRESS <u>678 Haddon Ave Collingswood, N.J.</u>		CITY <u>Collingswood</u>	STATE <u>08108</u>												
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>													
<table border="0"><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td></td><td><u>Wells*</u></td></tr><tr><td></td><td>Total</td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr></table>		1. Diversion from own sources	Surface		<u>Wells*</u>		Total	2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface												
			<u>Wells*</u>												
			Total												
		2. Received from other systems (see 6)													
		3. Delivered to other systems (see 7)													
4. Net diversion for territory served (see 8)															
1st Month		2nd Month	3rd Month												

5. How is diversion determined? If estimated, give basis of estimate All wells metered by turbine meters (Refer to sheet)

6. Systems from which water is received _____

7. Systems to which water is delivered _____

8. Municipalities supplied in territory served Collingswood, Woodlynne, Haddon Twp.

9. Population supplied in territory served 21,000

Summer population (if different than above) _____

10. Number of service connections in territory served 5,912

11. Number of service meters in territory served 5,908

John A Meier Superintendent John A Meier 10-23-90
Name (Please Print) Title Signature Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
1	31-79	9-19-90			
2	31-4053	9-22-90		91'	
3	31-4054	9-22-90		57'	
4	51-30	9-22-90		85'	
5	51-31	9-22-90		66'	
6	31-4799	9-19-90		72'	
7	31-4797	9-19-90		51'	
				48'	

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
------------------------	-------------------	-------------------------

ALL ANALYSIS ENCLOSED WITH REPORT.

INDIVIDUAL WELL USAGE***

<u>Well No</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
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***Units of 1,000

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>Borough of Collingswood</u>		WATER ALLOCATION PERMIT # <u>5209</u>		
STREET ADDRESS <u>678 Haddon Ave.</u>		CITY <u>Collingswood</u>	STATE <u>NJ</u>	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>		
1. Diversion from own sources Surface <u>Wells</u> Total 2. Received from other systems (see 6) 3. Delivered to other systems (see 7) 4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
5. How is diversion determined? If estimated, give basis of estimate <u>All Wells metered by turbine meters</u>				
6. Systems from which water is received _____				
7. Systems to which water is delivered _____				
8. Municipalities supplied in territory served <u>Collingswood, Woodlynne, Haddon Twp</u>				
9. Population supplied in territory served <u>21,000</u>				
Summer population (if different than above) _____				
10. Number of service connections in territory served <u>5,912</u>				
11. Number of service meters in territory served <u>5,908</u>				

John A Meier
Name (Please Print)

Superintendent
Title

John A Meier
Signature

1-11-90
Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Static Level*</u>	<u>Total Head**</u>
1	31-79	12-9-90		94'	
2	31-4053	12-9-90		60'	
3	31-4054	12-9-90		66'	
4	51-30	12-9-90		66'	
5	51-31	12-29-90		54'	
6	31-4799	12-9-90		51'	
7	31-4797	12-9-90		51'	

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
------------------------	-------------------	-------------------------

ALL ANALYSIS ENCLOSED WITH REPORT.

INDIVIDUEL WELL DIVERSTIONS ENCLOSED WITH REPORT.

WELL #6 OFF LINE DUE TO ELECTRICAL PROBLEM.

15:30
15:30
15:30

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>Borough of Collingswood</u>		WATER ALLOCATION PERMIT # <u>5209</u>		
STREET ADDRESS <u>678 Haddon Ave</u>		CITY <u>Collingswood</u>	STATE ZIP <u>N.J. - 08108</u>	
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1991</u>		
1. Diversion from own sources <div style="text-align: center; margin-top: 10px;"> Surface <div style="border: 1px solid black; border-radius: 50%; padding: 2px 10px; display: inline-block;">Wells*</div> Total </div> 2. Received from other systems (see 6) 3. Delivered to other systems (see 7) 4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
5. How is diversion determined? If estimated, give basis of estimate <u>All Wells metered by Turbine meters.</u>				
6. Systems from which water is received _____				
7. Systems to which water is delivered _____				
8. Municipalities supplied in territory served <u>Collingswood, Woodlynne, Haddon Twp.</u>				
9. Population supplied in territory served <u>21,000</u>				
Summer population (if different than above) _____				
10. Number of service connections in territory served <u>5,921</u>				
11. Number of service meters in territory served <u>5,917</u>				

* List individual well usage on reverse side of form

John A Meier Superintendent John A Meier
Name (Please Print) Title Signature

04/25/91
Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
1	31-79	3-26-91			
2	31-4053	3-30-91			
3	31-4054	3-30-91			
4	31-30	3-30-91			
5	31-31	3-30-91			
6	31-4790	3-13-91			
7	31-4797	3-13-91			

* Depth to Water in Feet

Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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ALL ANALYSIS ENCLOSURE WITH LOGS

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
-----------------	------------------------	----------------	----------------	----------------

Mar 29 '91

***Units of 1,000

DWR-017 B

WATERA FILE - 03/01/91

NUMBER: 5235
 NAME: HADDON TOWNSHIP WATER DEPT.
 STREET: 504 ONEIDA AVENUE
 CITY: WESTMONT
 STATE: NJ
 ZIP: 08108-
 ATTN: CHARLES A. STEVENSON
 PHONE: (609)854-1825
 CONTACT: EDWARD VERFICK
 TITLE: B
 CPHONE: (609)795-9895
 COUNTY1: 07
 COUNTY2:
 BASIN1: D
 BASIN2:
 CRITAREA: 2

ZONE:
 PINELAND: N
 WATERUSE: P
 MG: 613.0
 MG: 52.000
 GPM: 3420
 PFLOW: 0.0
 EFDATE: 02/11/1991
 EXDATE: 11/31/1991
 HEAD: 2.0
 MGD: 2.00
 HEARING: N
 STAFF: NE
 UPDATE: 03/01/1991
 FLAG:

NOTES1: TINO TORRES. OPERATOR
 NOTES2: 554-9411
 NOTES3:

WSOURCE FILE - 03/01/91

NUMBER:	5235	PINELAND:	N
SOURCEID:	3105243	ELEV:	53.5
LOCID:	1A	ELEVACC:	2
USGSUID:	070291	DEPTH:	481
LAT:	395406	DOPEN:	401
LON:	750317	BOPEN:	479
LLACC:	F	GEO1:	GKMR
NJGRID:	3102887	GEO2:	
COUNTY:	07	DIAMETER:	12
MUN:	16	WELLDATE:	09/27/1968
BASIN:	DDEL	CAPACITY:	870
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 03/01/91

NUMBER:	5235	PINELAND:	N
SOURCEID:	3100432	ELEV:	
LOCID:	2/SEALED	ELEVACC:	
USGSUID:	070289	DEPTH:	470
LAT:		DOPEN:	439
LON:		BOPEN:	470
LLACC:		GEO1:	GKMR
NJGRID:	3102884	GEO2:	
COUNTY:	07	DIAMETER:	
MUN:	16	WELLDATE:	/ /
BASIN:	DDEL	CAPACITY:	1300
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 03/01/91

NUMBER:	5235	PINELAND:	N
SOURCEID:	3102146	ELEV:	
LOCID:	3/SEALED	ELEVACC:	
USGSUID:	070288	DEPTH:	469
LAT:		DOPEN:	432
LON:		BOPEN:	469
LLACC:		GEO1:	GKMR
NJGRID:	3102879	GEO2:	
COUNTY:	07	DIAMETER:	
MUN:	16	WELLDATE:	/ /
BASIN:	DDEL	CAPACITY:	800
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 03/01/91

NUMBER:	5235	PINELAND:	N
SOURCEID:	3104855	ELEV:	44
LOCID:	4	ELEVACC:	2
USGSUID:	070292	DEPTH:	448
LAT:	395406	DOPEN:	417
LON:	750332	BOPEN:	448
LLACC:	F	GEO1:	GKMR
NJGRID:	3102879	GEO2:	
COUNTY:	07	DIAMETER:	12
MUN:	16	WELLDATE:	08/25/1965
BASIN:	DDEL	CAPACITY:	1000
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

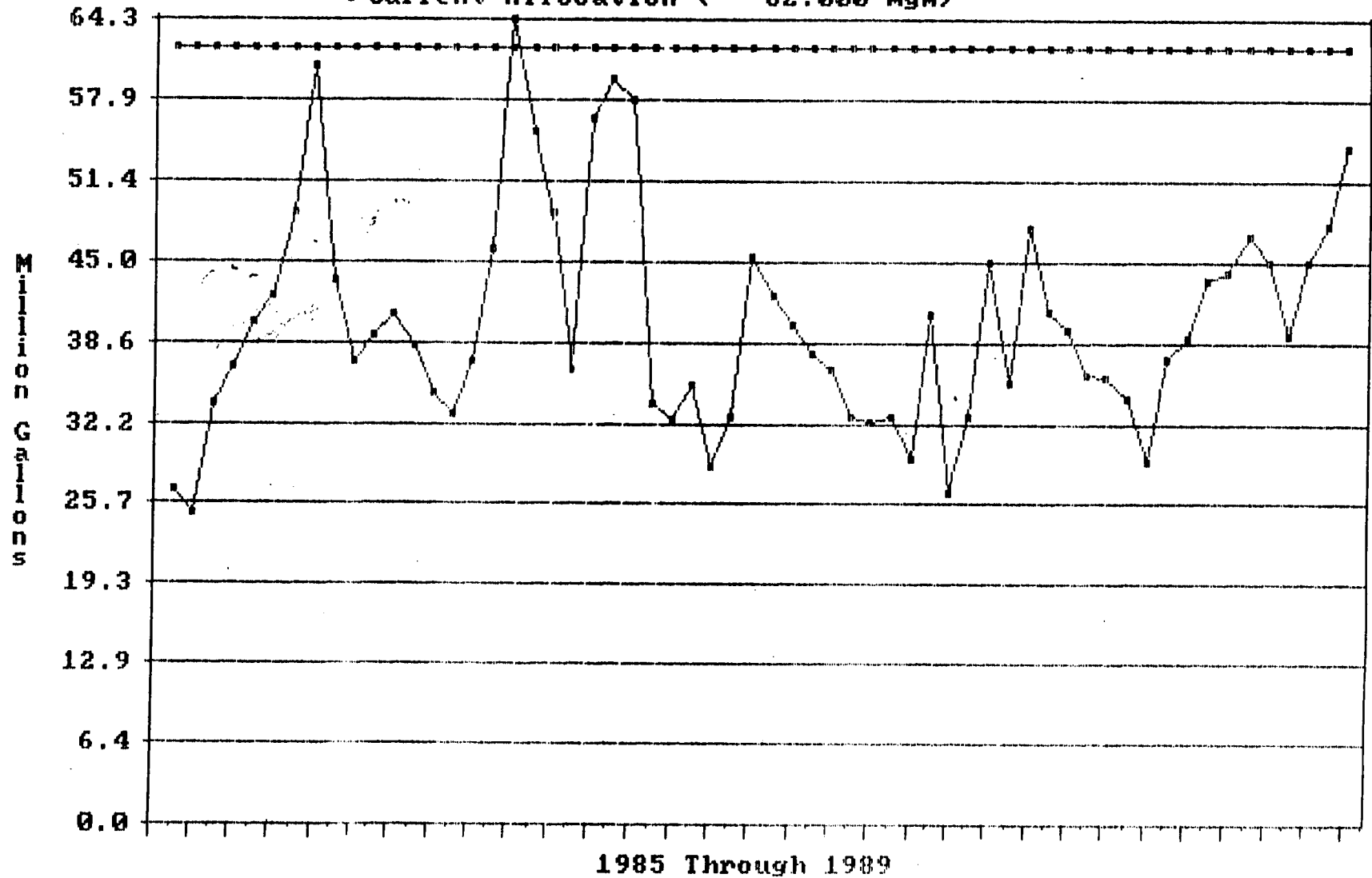
WSOURCE FILE - 03/01/91

NUMBER:	5235	PINELAND:	N
SOURCEID:	3129099	ELEV:	54.
LOCID:	2A	ELEVACC:	2
USGSUID:		DEPTH:	487
LAT:	395355	DOPEN:	430
LOD:	750330	BOPEN:	452
LLACC:	F	GEO1:	GKMR
NJGRID:	3112213	GEO2:	
COUNTY:	07	DIAMETER:	10
MUN:	16	WELLDATE:	09/06/1988
BASIN:	DDEL	CAPACITY:	800
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 03/01/91

NUMBER:	5235	PINELAND:	N
SOURCEID:	3129896	ELEV:	53.
LOCID:	3A	ELEVACC:	2
USGSUID:		DEPTH:	475
LAT:	395355	DOPEN:	420
LOD:	750315	BOPEN:	442
LLACC:	F	GEO1:	GKMR
NJGRID:	3112221	GEO2:	
COUNTY:	07	DIAMETER:	10
MUN:	16	WELLDATE:	07/20/1988
BASIN:	DDEL	CAPACITY:	750
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WATER USAGE BY HADDON TOWNSHIP WATER DEPT. (5235)
—•— Current Allocation (62.000 mgm)



DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

Reports must be filed within 30 days following the close of each quarter.

Report all quantities in units of 1,000 gallons.

Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.

Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.

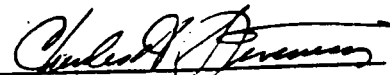
The sums of Items 1 and 2 should equal the sums of Items 3 and 4.

Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE HADDON TOWNSHIP WATER DEPT.		WATER ALLOCATION PERMIT # 5235		
STREET ADDRESS 504 ONEIDA AVE.		CITY WESTMONT	STATE NJ	
		ZIP 08108		
FOR THE QUARTER ENDING <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR <u>1990</u>		
		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		JANUARY	FEBRUARY	MARCH
1. Diversion from own sources		46,554	48,075	53,999
Surface				
Wells				
Total		46,554	48,075	53,999
2. Received from other systems (see 6)		000	000	000
3. Delivered to other systems (see 7)		000	000	000
4. Net diversion for territory served (see 8)		46,554	48,075	53,999
5. How is diversion determined? If estimated, give basis of estimate		ALL WELLS ARE METERED.		
6. Systems from which water is received		NONE		
7. Systems to which water is delivered		NONE		
8. Municipalities supplied in territory served		ONE		
9. Population supplied in territory served		12,000		
Summer population (if different than above)				
10. Number of service connections in territory served		4,149		
11. Number of service meters in territory served		4,149		

CHARLES A. STEVENSON

LICENSED SUPERINTENDENT



Name (Please Print)

Title

Signature

STATIC WATER LEVEL DATA

Method Used - ☐ M Scope ☒ Air Line (Check appropriate box)

Well Permit No.

Date Taken

Level

SEE ATTACHED SHEETS

1-A 31855
2-A 31-29099
3-A 31-28896
4. 3429

CHLORIDE ANALYSIS*

Well Permit No.

Date Taken

Analysis Results (mg/l)

1-A 31855
2-A 31-29099
3-A 31-28896
4 3429

1/19/96
1/19/96
1/19/96
1/19/96

<u>CHLORIDE</u>	<u>SODIUM</u>
5.07	3.60
6.84	4.50
4.81	4.90
5.83	5.20

* and/or other monitored contaminants

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH January 1990

WELL #1		MSL	MSL				
DATE	TIME	STATIC HEAD	DATE	PUMPING LEVEL	DRAW DOWN (FT)	GPM	SP. CAP.
4	0900	-76.5	5	-109.5	33	495	
11	1000	-78.5	12	-106.5	28		
18	0900	-78.5	19	-106.5	28		
25	0930	-78.5	26	-106.5	28		
					29.25		16.9

WELL #2							
DATE	TIME	STATIC HEAD		PUMPING LEVEL	DRAW DOWN	~800	
4	1115	-77	5	-107	30		
11	1200	-71	12	-101	30		
18	1130	-76	19	-107	31		
25	1130	-77	26	-107	30		
					30.25		26.5

WELL #3							
DATE	TIME	STATIC HEAD		PUMPING LEVEL	DRAW DOWN	~800	
4	1330	-83	5	-104	21		
11	1415	-84	12	-105	21		
18	1330	-83	19	-104	21		
25	1400	-84	26	-105	21		
					21		38.1

WELL #4							
DATE	TIME	STATIC HEAD		PUMPING LEVEL	DRAW DOWN	~900	
4	1545	-56	5	-84	28		
11	1615	-54	12	-86	32		
18	1545	-54	19	-86	32		
25	1615	-54	26	-86	32		
					31		29.0

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH FEBRUARY 1990

WELL #1

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
2/1	0930	-78.5	2/2 -106.5	28'		
2/8	0900	-78.5	9 -106.5	28'		
2/15	0900	007 & 50 100	16 —	—		
2/22	0915	11	23 —	—		
WELL #2		-28.5	-106.5	28'		

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
2/1	1130	-71	2/2 -101	30'
8	1015	-71	9 -101	30'
15	1030	-72	11 -106	34'
22	1130	-71	23 -104	33'
WELL #3		-71	-103	31.8'

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
2/1	1400	-83	2/2 -104	21'
8	1245	-83	9 -104	21'
15	1015	-81	16 -100	19'
22	1330	-79	23 -102	23'
WELL #4		-81	-103	21'

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
2/1	1615	-54	2 -86	32'
8	1500	-54	9 -86	32'
15	1500	-31	16 -82	51'
22	1530	-31	23 -83	52'
		42.5	-84	41.8'

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH MARCH 1990

WELL #1

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
3/7	0930	OUT OF SERVICE	3/8 out of service	—		
14	0900	11	15 11	—		
21	0900	11	22 11	—		
28	0935	11	29 11	—		

WELL #2

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
3/7	1130	-71	3/8 -104	33
14	1015	-71	15 -104	33
21	1030	-71	22 -104	33
28	1130	-72	29 -106	34
		-71	-104	33

WELL #3

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
3/7	1400	-79	3/8 -102	23
14	1245	-81	15 -100	19
21	1315	-79	22 -102	23
28	1330	-79	29 -102	23
		-79	-101.5	22

WELL #4

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
3/7	1615	-99	3/8 -84	45
14	1500	-54	15 -86	32
21	1500	-54	22 -86	32
28	1500	-97	29 -84	45
		61.5	-85	38.5

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

Reports must be filed within 30 days following the close of each quarter.

Report all quantities in units of 1,000 gallons.

Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.

Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.

The sums of Items 1 and 2 should equal the sums of Items 3 and 4.

Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE		WATER ALLOCATION PERMIT #	
HADDON TOWNSHIP WATER DEPT.		5235	
STREET ADDRESS		CITY	STATE
504 ONEIDA AVE		WESTMONT	NJ
FOR THE QUARTER ENDING:		ZIP	
<input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30		08108	
<input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31			
FOR THE YEAR:		SUMMARY OF DIVERSION IN UNITS OF 1,000	
1990			
1. Diversion from own sources		Surface	
		Wells	
		Total	
Received from other systems (see 6)		1st Month	
Delivered to other systems (see 7)		2nd Month	
Net diversion for territory served (see 8)		3rd Month	
How is diversion determined? If estimated, give basis of estimate		APRIL	
		MAY	
		JUNE	
		51,144	
		55,160	
		46,826	
		51,144	
		55,160	
		46,826	
		000	
		000	
		000	
		000	
		51,144	
		55,160	
		46,826	
6. Systems from which water is received		ALL WELLS METERED	
7. Systems to which water is delivered			
8. Municipalities supplied in territory served			
9. Population supplied in territory served			
Summer population (if different than above)			
10. Number of service connections in territory served			
11. Number of service meters in territory served			

CHRALES A. STEVENSON
Name (Please Print)

SUPT. OF WATER & SEWER
Title

Charles A. Stevenson
Signature

WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

Well Permit No.	Date Taken	Site Elevation	Level*
31855	/ /	SEE ATTACHED SHEETS	
31-29099	/ /		
31-28896	/ /		
3429	/ /		

* Measurements in feet below sea level.

ANALYSIS**

Permit No.	Date Taken	Analysis Results (mg/l)	
		CHLORIDE	SODIUM
31855	/ /		
31-29099	/ /		
31-28896	/ /		
3429	/ /		

other monitored contaminants

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH APRIL 1990

WELL #1

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
4	0930	OUT OF SERVICE			495	
11	0915					
18	0930					
25	0915					

WELL #2

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
4	1100	71.0	5 180 104	33	815	24.7
11	1015	71.0	12 110	39		
18	1000	75.0	19 130 109	34		
25	1130	74.0	26 130 111	37		

WELL #3

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
4	1400	84	5 1315 104	20	860	43
11	1230	81	12 1330 96	15		
18	1315	80	19 1400 100	20		
25	1300	78	26 1330 100	22		

WELL #4

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
4	1615	54	5 1500 86	32	800	27
11	1500	41	12 1530 81	40		20
18	1530	42	19 1600 81	39		20.5
25	1530	33	26 1445 83	50		16

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH MAY 1990

WELL #1

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
2		OUT OF SERVICE				
9						
16						
23						

WELL #2

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
2	1100	75	3 1100 109	34
9	1015	77	10 1115 112	35
16	1000	76	17 1130 110	34
23	1130	75	24 1130 109	34

WELL #3

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
2	1400	80	3 1315 100	20
9	1230	80	10 1330 97	17
16	1315	81	17 1420 99	18
23	1530	81	24 1430 99	18

WELL #4

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
2	1615	42	3 1500 81	39
9	1500	37	10 1530 82	49
16	1530	39	17 1600 81	50
23	1530	42	24 1445 81	39

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH JUNE 1990

WELL #1

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
6	9	OUT OF SERVICE	7 9 OUT OF SERVICE	—		
13	9	↓	14 10 ↓	—		
20	10	79.5	21 9 103.5	24		
27	930	79.5	28 930 104.5	25		

WELL #2

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
6	11	74	7 1115 111	37
13	11	77	14 12 99	22
20	1200	76	21 11 101	25
27	1130	75	28 1130 100	25

WELL #3

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
6	1300	81	7 1330 101	20
13	1300	82	14 1400 100	18
20	1400	78	21 1300 103	25
27	1430	83	28 1335 101	18

WELL #4

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
6	1530	42	7 16 81	37
13	1530	41	14 1630 80	39
20	1615	36	21 1530 84	48
27	1655	40	28 1600 80	40

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE HADDON TOWNSHIP WATER DEPT.		WATER ALLOCATION PERMIT # 5235	
STREET ADDRESS 504 ONEIDA AVE		CITY WESTMONT	STATE NJ
		ZIP 08108	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month JULY	2nd Month AUGUST
		3rd Month SEPTEMBER	
1. Diversion from own sources		48,983	47,084
Surface		43,409	
Wells		48,983	47,084
Total		43,409	
2. Received from other systems (see 6)		000	000
3. Delivered to other systems (see 7)		000	000
4. Net diversion for territory served (see 8)		48,983	47,084
5. How is diversion determined? If estimated, give basis of estimate		ALL WELLS METERED	
6. Systems from which water is received		NONE	
7. Systems to which water is delivered		NONE	
8. Municipalities supplied in territory served		ONE	
9. Population supplied in territory served		12,000	
Summer population (if different than above)			
10. Number of service connections in territory served		4,149	
11. Number of service meters in territory served		4,149	

CHRALES A. STEVENSON
Name (Please Print)

SUPT. OF WATER & SEWER
Title


Signature

WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

No.	Well Permit No.	Date Taken	Site Elevation	Level*
	31-5243	/ /	53.5	SEE ATTACHED SHEETS
	31-29099	/ /	54.0	
	31-28896	/ /	53.0	
	31-4855	/ /	44.0	

5235

*Measurements in feet below sea level.

CHLORIDE ANALYSIS**

Well Permit No.	Date Taken	Analysis Results (mg/l)	
		CHLORIDE	SODIUM
1-A 31-5243	7/5/90	4.4	4.3
2-A 31-29099	7/5/90	3.5	5.1
3-A 31-28896	7/5/90	4.4	5.5
4 31-4855	7/5/90	3.5	5.2

**For other monitored contaminants

Nov 20 '90

DEPT. OF PROTECTION
DIV. OF WATER RESOURCES
WASHINGTON

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS (MSL)

MONTH July 1990

WELL #1 #31-5243

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
5	0900	⊖ 79.5	⊖ 105.5	26	445	19
12	0900	⊖ 79.5	⊖ 105.5	26		
19	1030	⊖ 79.5	⊖ 105.3	26		
26	0930	⊖ 80.5	⊖ 104.5	24		

WELL #2 #31-29099

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	815	24
5	1100	⊖ 76	⊖ 111	35		
12	1100	⊖ 76	⊖ 110	34		
19	1200	⊖ 76	⊖ 110	34		
26	1130	⊖ 77	⊖ 111	31		

WELL #3 #31-28896

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	860	46
5	1300	⊖ 81	⊖ 100	19		
12	1300	⊖ 81	⊖ 99	18		
19	1400	⊖ 81	⊖ 99	18		
26	1430	⊖ 81	⊖ 100	19		

WELL #4 #31-4853

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	800	20
5	1530	⊖ 42	⊖ 82	40		
12	1530	⊖ 39	⊖ 81	42		
19	1615	⊖ 42	⊖ 82	40		
26	1600	⊖ 41	⊖ 80	39		

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS (MSL)

MONTH AUGUST 1990

WELL #1 - # 31-5243

☒ AIR LINE

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN (Fr)	GPM	SP. CAP.
7	0900	- 79.5	8 - 105.5	26		
14	0900	- 79.5	15 - 103.5	24		
21	1000	- 79.5	22 - 104.5	25		
28	0930	- 78.5	29 - 104.5	26		

WELL #2 # 31-29099

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
7	1100	- 77	8 - 110	33
14	1100	- 81	15 - 114	33
21	1200	- 80	22 - 113	33
28	1130	- 82	29 - 116	34

WELL #3 # 31-28896

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
7	1300	- 77	8 - 101	24
14	1300	- 77	15 - 102	23
21	1400	- 77	22 - 101	22
28	1430	- 78	29 - 102	24

WELL #4 # 31-4855

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN
7	1530	- 46	8 - 85	39
14	1530	- 45	15 - 83	38
21	1615	- 49	22 - 84	35
28	1630	- 61	29 - 84	23

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH SEPTEMBER 1990

WELL #1

<u>DATE</u>	<u>TIME</u>	<u>STATIC HEAD</u>	<u>PUMPING LEVEL</u>	<u>DRAW DOWN</u>	<u>GPM</u>	<u>SP. CAP.</u>
5	0900	- 80.5	- 105.5	25		
12	0900	- 76.5	- 99.5	23		
19	1000	- 77.5	- 100.5	23		
26	0930	- 76.5	- 99.5	23		

WELL #2

<u>DATE</u>	<u>TIME</u>	<u>STATIC HEAD</u>	<u>PUMPING LEVEL</u>	<u>DRAW DOWN</u>
5	1100	- 76	- 110	34
12	1000	- 82	- 114	32
19	1200	- 80	- 111	31
26	1230	- 80	- 112	32

WELL #3

<u>DATE</u>	<u>TIME</u>	<u>STATIC HEAD</u>	<u>PUMPING LEVEL</u>	<u>DRAW DOWN</u>
5	1300	- 77	- 103	26
12	1300	- 81	- 105	24
19	1400	- 78	- 102	24
26	1430	- 79	- 106	22

WELL #4

<u>DATE</u>	<u>TIME</u>	<u>STATIC HEAD</u>	<u>PUMPING LEVEL</u>	<u>DRAW DOWN</u>
5	1530	- 50	- 84	34
12	1530	- 35	- 85	50
19	1615	- 36	- 84	48
26	1630	- 36	- 85	49

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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CN 029, TRENTON, N.J. 08625

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Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE		HADDON TOWNSHIP WATER DEPT.		WATER ALLOCATION PERMIT #	
STREET ADDRESS		CITY		STATE	ZIP
504 ONEIDA AVE		WESTMONT		NJ	08108
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>		SUMMARY OF DIVERSION IN UNITS OF 1,000	
1. Diversion from own sources Surface Wells Total 2. Received from other systems (see 6) 3. Delivered to other systems (see 7) 4. Net diversion for territory served (see 8) 5. How is diversion determined? If estimated, give basis of estimate		1st Month	2nd Month	3rd Month	
		OCTOBER	NOVEMBER	DECEMBER	
		44,753	35,458	35,991	
		44,753	35,458	35,991	
		000	000	000	
		000	000	000	
		44,753	35,458	35,991	
ALL WELLS METERED					
6. Systems from which water is received		NONE			
7. Systems to which water is delivered		NONE			
8. Municipalities supplied in territory served		ONE			
9. Population supplied in territory served		12,000			
Summer population (if different than above)					
10. Number of service connections in territory served		4,149			
11. Number of service meters in territory served		4,149			

CHRALES A. STEVENSON
Name (Please Print)

SUPT. OF WATER & SEWER
Title


Signature

ATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

Well No.	Well Permit No.	Date Taken	Site Elevation	Level*
	31855	/ /	+ 53.5	
			SEE ATTACHED SHEETS	
-A	31-29099	/ /	+ 54.0	
	31-28896	/ /	+ 53.0	
	3429	/ /	+ 44.0	

* Measurements in feet below sea level.

CHLORIDE ANALYSIS**

Well Permit No.	Date Taken	Analysis Results (mg/l)	
		CHLORIDE	SODIUM
-A 31855	/ /		
-A 31-29099	/ /		
-A 31-28896	/ /		
3429	/ /		

and for other monitored contaminants

FEB 26 '91

DOES

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH DECEMBER
1990

WELL #1 53.5

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
5/6	9/930	- 78.5	- 99.5	23	630	27.4
12/13	2/10	- 78.5	- 98.5	20		
19/20	10/9	- 77.5	- 100.5	23		
26/27	930/930	- 79.5	- 101.5	22		
WELL #2 54		(-78)	(-100)	(22)		(27.4)

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
5/6	11/130	- 76	- 112	36	630	17.5
12/13	11/12	- 78	- 113	35		
19/20	12/11	- 76	- 112	36		
26/27	1130/130	- 77	- 111	34		
WELL #3 53		(-77)	(-112)	(35)		(17.5)

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
5/6	14/1330	- 79	- 103	24	800	33.3
12/13	13/14	- 79	- 103	24		
19/20	14/13	- 81	- 105	24		
26/27	1430/1330	- 81	- 104	23		
WELL #4 44		(-80)	(-104)	(24)	(800)	(33.3)

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
5/6	16/1530	- out of service	- out of service	- out of service		
12/13	1530/1630	- 11	- 11	11		
19/20	1615/1530	- 36	- 83	47		
26/27	1630/14	- 34	- 82	48		
		(-35)	(-82.5)	(47.5)	2825	(17.4)

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH OCTOBER

1990

WELL #1 +53.5

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
4/5	9/9	-76.5	-100.5	24	600	
11/12	9/10	-78.5	-101.5	23	625	
18/19	10/9	-77.5	-100.5	23	625	
25/26	930/930	-77.5	-101.5	24	620	
WELL #2	+54.0	-77.5	-100.8	23.5	622	26.5

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
4/5	11/11/15	-82.8	-113	32	640	
11/12	11/12	-82.8	-112	32	625	
18/19	12/11	-80.8	-110	31	630	
25/26	1130/1130	-82.8	-111	30	625	
WELL #3	+53.0	-81	-111.5	31.3	630	20.1

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
4/5	13/1330	-79.8	-104	24	825	
11/12	13/1400	-80.8	-105	24	800	
18/19	14/13	-79.8	-105	25	800	
25/26	1430/1330	-78.8	-104	25	800	
WELL #4	+44.0	-79	-104.5	24.5	800	32.9

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
4/5	1530/14	-39	-87	48	825	
11/12	1530/1630	-37	-86	49	850	
18/19	1615/1530	-35	-85	50	825	
25/26	1630/14	-36	-85	49	800	
		-37	-85.8	49	825	16.8

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH NOVEMBER
1990

WELL #1 53.5

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
5/6	9/30	-78.5	- 98.5	20	600	
12/13	9/10	-71.5	- 98.5	27	625	
19/20	10/9	-77.5	- 100.5	23	625	
26/27	930/930	-76.5	- 101.5	25	620	
		(76)	(100)	(24)	(622)	(25.9)

WELL #2 54

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
5/6	11/1130	- 77	- 115	38	646	
12/13	11/12	- 77	- 112	35	625	
19/20	12/11	- 78	- 113	35	630	
24/27	1130/1130	- 78	- 114	36	625	
		(-77.5)	(-112.5)	(36)	(630)	(17.5)

WELL #3 53

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
5/6	24/1330	- 80	- 108	28	825	
12/13	13/14	- 79	- 103	24	800	
19/20	1430/13	- 79	- 105	26	800	
24/27	1430/1330	- 81	- 105	24	800	
		(-80)	(-105)	(25.5)	(806)	(31.6)

WELL #4 44

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAI
5/6	16/1530	- 39	- 85	46	825	
12/13	1530/1630	- 34	- 84	50	850	
19/20	1615/1530	- 36	- 83	47	85	
20/27	1630/14	- 35	- 82	47	800	
		(-36)	(-83.5)	(47.5)	(825)	(17)

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE HADDON TOWNSHIP WATER DEPARTMENT		WATER ALLOCATION PERMIT # 5235	
STREET ADDRESS 504 ONEIDA AVENUE		CITY HADDON TWP.	STATE NJ
			ZIP 08108
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1991	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month JANUARY	2nd Month FEBRUARY
			3rd Month MARCH
1. Diversion from own sources		37,429	31,567
Surface			35,877
Wells*		37,429	31,567
Total		37,429	35,877
2. Received from other systems (see 6)		000	000
Delivered to other systems (see 7)		000	000
4. Net diversion for territory served (see 8)		37,429	31,567
			35,877
* List individual well usage on reverse side of form			
5. How is diversion determined? If estimated, give basis of estimate ALL WELLS ARE METERED.			
6. Systems from which water is received NONE			
Systems to which water is delivered NONE			
Municipalities supplied in territory served ONE			
9. Population supplied in territory served 12,000			
Summer population (if different than above)			
10. Number of service connections in territory served 4,149			
Number of service meters in territory served 4,149			

CHARLES A. STEVENSON

Name (Please Print)

Charles A. Stevenson
Title

SUPT. OF WATER & SEWER

Signature

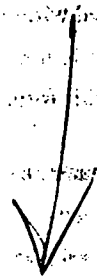
4/26/91
Date

STATIC WATER LEVEL DATA

Method Used ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

Well No.	Well Permit No.	Date Taken	Site Elevation	Level*	Total Head**
1-A	31-5243	/ /	+53.5		-
2-A	31-29099	/ /	+54.0		-
3-A	31-28896	/ /	+53.0		-
4	31-4855	/ /	+44.0		-

SEE ATTACHED
SHEETS



* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

Well Permit No.	Date Taken	Analysis Results (mg/l)
31-5243	3/19/91	1.4
31-29099	3/19/91	2.7
31-28896	3/19/91	1.0
31-4855	3/19/91	2.4

INDIVIDUAL WELL USAGE***

Well No.	Well Permit No.	Month 1	Month 2	Month 3
1-A	31-5243	17,934	18,286	19,593
2-A	31-29099	4,915	2,604	4,391
3-A	31-28896	6,152	3,936	4,441
4	31-4855	8,425	6,819	7,451

* Units of 1,000

DWR-017 B

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH JANUARY 1991

WELL #1

DATE	TIME	STATIC HEAD (MSL)	PUMPING LEVEL (MSL)	DRAW DOWN (FT)	GPM	SP. CAP.
2	0900	-79.5	3 930 -101.5	22	600	27.3
9	0900	-79.5	10 1000 -101.5	22	625	28.4
16	1000	-78.5	17 0900 -98.5	20	625	31.2
23	0930	-77.5	24 0930 -100.5	23	610	26.5

WELL #2

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
2	1100	-78	3 1100 -111	34	750	20.6
9	1100	-78	10 1200 -111	34	700	20.6
16	1200	-77	17 1100 -112	36	750	20.8
23	1130	-79	24 1130 -113	35	770	22.0

WELL #3

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
2	1400	-79	3 1330 -103	24	750	31.3
9	1300	-79	10 1400 -103	24	750	31.3
16	1400	-79	17 1300 -103	24	700	29.2
23	1430	-81	24 1330 -104	23	725	31.5

WELL #4

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
2	1600	-34	3 1530 -82	48	825	17.2
9	1530	-34	10 1630 -82	48	830	17.3
16	1615	-36	17 1530 -83	47	800	17.0
23	1630	-36	24 1400 -83	47	830	17.7

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNS

MONTH FEBRUARY 1991

WELL #1

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN	GPM	SP. CAP.
6	0800	-75.5	7 930 -98.5	23	625	27.2
13	0900	-77.5	14 1000 -100.5	23		
20	1000	-78.5	21 0900 -98.5	20		
27	0930	-77.5	28 930 -100.5	23		

WELL #2

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN		
6	1100	-78	7 1100 -128.5	43	770	17.9
13	1100	-77	14 1200 -112	86		
20	1260	-77	21 1100 -112	36		
27	1130	-78	28 1130 -113	34		

WELL #3

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN		
6	1400	-73	7 1330 -106	33	750	22.7
13	1300	-79	14 1400 -103	24		
20	1400	-73	21 1300 -106	33		
27	1430	-74	28 1330 -105	31		

WELL #4

DATE	TIME	STATIC HEAD	PUMPING LEVEL	DRAW DOWN		
6	1600	-44	7 1530 -86	42	830	19.8
13	1530	-36	14 1630 -83	47		
20	1615	-41	21 1530 -82	41		
27	1630	-41	28 1400 -82	41		

TOWNSHIP OF HADDON - - - WATER WELL DRAW DOWNSMONTH MARCH 1991WELL #1

<u>DATE</u>	<u>TIME</u>	<u>STATIC HEAD</u>	<u>PUMPING LEVEL</u>	<u>DRAW DOWN</u>	<u>GPM</u>	<u>SP. CAP.</u>
5	0900	- 77.5	6 950 - 100.5	23		
12	0900	- 77.5	13 930 - 100.5	23		
19	0900	- 78.5	20 930 - 98.5	20		
26	0930	- 77.5	27 930 - 98.5	22		

WELL #2

<u>DATE</u>	<u>TIME</u>	<u>STATIC HEAD</u>	<u>PUMPING LEVEL</u>	<u>DRAW DOWN</u>
5	1100	- 77	6 1130 - 112	36
12	1100	- 78	13 1130 - 111	34
19	1100	- 78	20 1100 - 111	34
26	1130	- 78	27 1100 - 111	34

WELL #3

<u>DATE</u>	<u>TIME</u>	<u>STATIC HEAD</u>	<u>PUMPING LEVEL</u>	<u>DRAW DOWN</u>
5	1400	- 73	6 1400 - 106	33
12	1400	- 73	13 1400 - 106	33
19	1400	- 74	20 1400 - 105	31
26	1430	- 73	27 1400 - 104	31

WELL #4

<u>DATE</u>	<u>TIME</u>	<u>STATIC HEAD</u>	<u>PUMPING LEVEL</u>	<u>DRAW DOWN</u>
5	1630	- 41	6 1630 - 82	41
12	1700	- 41	13 1630 - 82	41
19	1600	- 44	20 1600 - 86	42
26	1630	- 40	27 1630 - 83	43

WATERA FILE - 04/24/91

NUMBER:	5202	ZONE:	1
NAME:	NEW JERSEY-AMERICAN WATER CO.	PINELAND:	N
STREET:	515 GROVE STREET	WATERUSE:	P
CITY:	HADDON HEIGHTS	MGY:	1790.0
STATE:	NJ	NGM:	224.750
ZIP:	08035-	GPM:	5495
ATTN:	HADDON DISTRICT	PFLOW:	0.0
PHONE:	(609)547-1700	EFDATE:	04/24/1991
CONTACT:	CLARA DEANDRE	EXDATE:	03/31/1992
FILE:		PEAKTYPE:	G
PHONE:	(609)547-1700	MGD:	7.25
COUNTY1:	07	HEARING:	N
COUNTY2:		STAFF:	LGS
BASIN1:	D	UPDATE:	04/24/1991
BASIN2:		FLAG:	
CTAREA:	2		

NOTES1: WESTERN DIVISION HADDON SYSTEM

NOTES2:

NOTES3:

WSOURCE FILE - 04/24/91

NUMBER:	5202	PINELAND:	N
SOURCEID:	5100008	ELEV:	70
LCID:	HADDON 11	ELEVACC:	1
SSUID:	070282	DEPTH:	272
LT:	395243	DOPEN:	212
LN:	750320	BOPEN:	272
LLACC:	F	GEO1:	GKMR
LRID:	3112281	GEO2:	
COUNTY:	07	DIAMETER:	
LN:	12	WELLDATE:	/ /1945
BSIN:	D	CAPACITY:	700
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5202	PINELAND:	N
SOURCEID:	5100009	ELEV:	80
LCID:	HADDON 12	ELEVACC:	1
SSUID:	070280	DEPTH:	267
LT:	395240	DOPEN:	
LN:	750318	BOPEN:	
LLACC:	F	GEO1:	GKMR
LRID:	3112281	GEO2:	
COUNTY:	07	DIAMETER:	
LN:	18	WELLDATE:	/ /1947
BSIN:	D	CAPACITY:	700
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5202	PINELAND:	N
SOURCEID:	3101124	ELEV:	80
LOCID:	HADDON 14	ELEVACC:	1
USGSUID:	070281	DEPTH:	598
LOT:	395240	DOPEN:	506
LN:	750323	BOPEN:	598
LLACC:	F	GEO1:	GKMR
GRID:	3112281	GEO2:	
COUNTY:	07	DIAMETER:	8
MAN:	18	WELLDATE:	08/12/1954
BASIN:	D	CAPACITY:	800
CRITAREA:	2-	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5202	PINELAND:	N
SOURCEID:	3102434	ELEV:	90
LOCID:	HADDON 15	ELEVACC:	1
USGSUID:	070278	DEPTH:	597
LOT:	395238	DOPEN:	455
LN:	750316	BOPEN:	597
LLACC:	F	GEO1:	GKMR
GRID:	3112281	GEO2:	
COUNTY:	07	DIAMETER:	8
MAN:	18	WELLDATE:	02/28/1956
BASIN:	D	CAPACITY:	800
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5202	PINELAND:	N
SOURCEID:	3103375	ELEV:	70
LOCID:	HADDON 20	ELEVACC:	1
WELLID:	070275	DEPTH:	267
LAT:	395231	DOPEN:	236
WON:	750312	BOPEN:	267
LLACC:	F	GEO1:	GKMR
GRID:	3112281	GEO2:	
COUNTY:	07	DIAMETER:	12
WON:	18	WELLDATE:	09/08/1956
ASIN:	D	CAPACITY:	700
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5202	PINELAND:	N
SOURCEID:	3104798	ELEV:	70
LOCID:	HADDON 30	ELEVACC:	1
WELLID:	070279	DEPTH:	279
LAT:	395238	DOPEN:	224
WON:	750317	BOPEN:	275
LLACC:	F	GEO1:	GKMR
GRID:	3112273	GEO2:	
COUNTY:	07	DIAMETER:	12
WON:	18	WELLDATE:	03/02/1965
ASIN:	D	CAPACITY:	805
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5202	PINELAND:	N
SOURCEID:	3103308	ELEV:	30
LCID:	EGBERT 18	ELEVACC:	
USGSUID:	070285	DEPTH:	190
LNT:	395248	DOPEN:	184
LN:	750433	BOPEN:	190
LLACC:	F	GEO1:	GKMR
GRID:	3112156	GEO2:	
COUNTY:	07	DIAMETER:	12
WUN:	18	WELLDATE:	01/02/1988
BSIN:	D	CAPACITY:	700
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

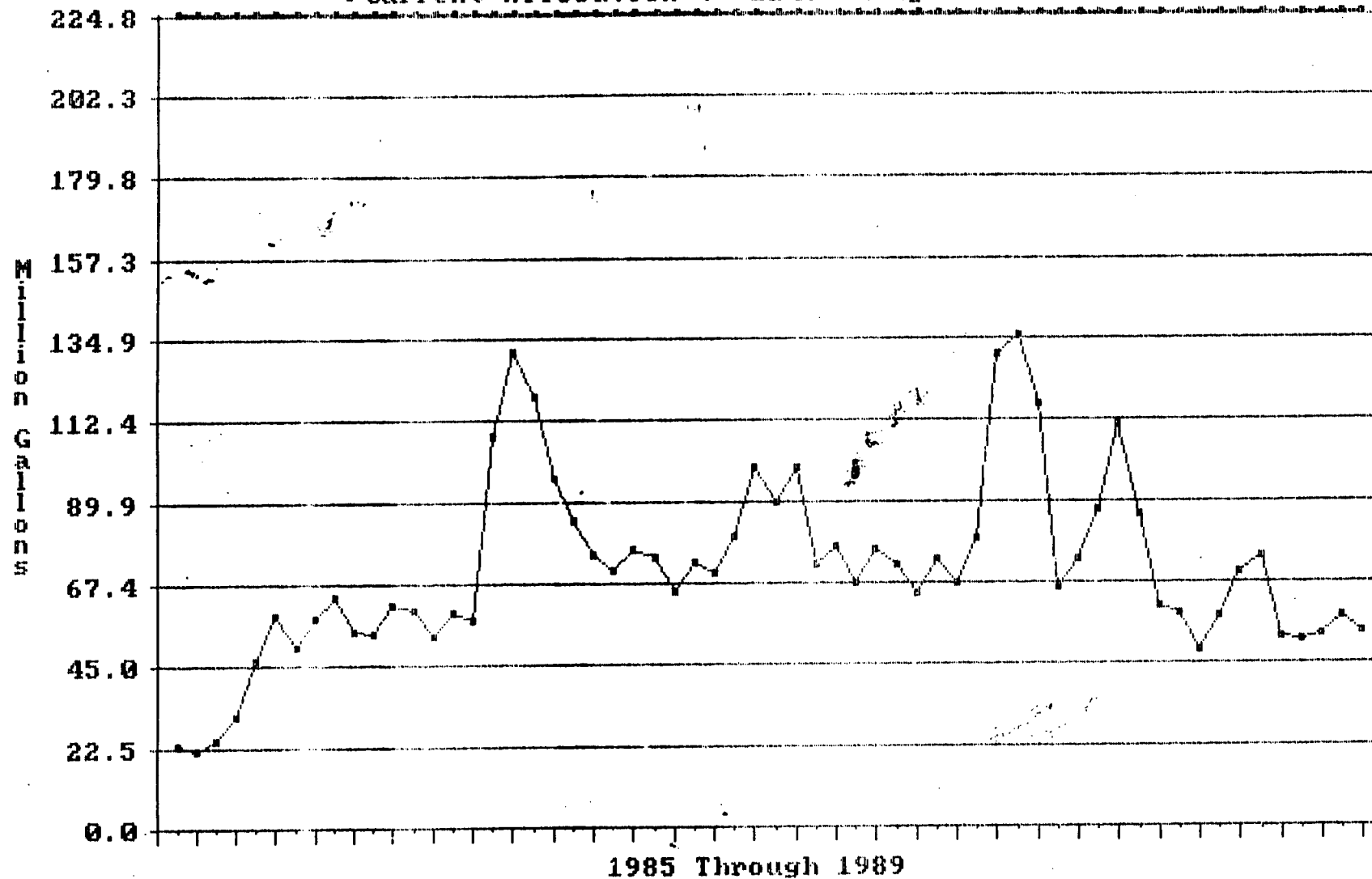
WSOURCE FILE - 04/24/91

NUMBER:	5202	PINELAND:	N
SOURCEID:	3105154	ELEV:	30
LCID:	EGBERT 35	ELEVACC:	
USGSUID:	070284	DEPTH:	424
LNT:	395247	DOPEN:	422
LN:	750432	BOPEN:	484
LLACC:	F	GEO1:	GKMR
GRID:	3112167	GEO2:	
COUNTY:	07	DIAMETER:	12
WUN:	18	WELLDATE:	03/30/1967
BSIN:	D	CAPACITY:	700
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

W2SOURCE FILE - 04/24/91

NUMBER:	5202	PINELAND:	N
SOURCEID:	PROPOSED	ELEV:	50
ACID:	HADON 63	ELEVACC:	1
WELLID:		DEPTH:	490
DATE:	395219	COOPER:	
WELL:	750302	SOPEX:	
SLACC:	F	GEO1:	GRMR
GRID:	0112295	GEO2:	
COUNTY:	07	DIAMETER:	
WELL:	03	WELLDATE:	
SERIAL:	D	CAPACITY:	1040
CRITAREA:	25	MGM:	0.000
ZONE:	1	FLAG:	

— Current Allocation (224.750 mgm)



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

Reports must be filed within 30 days following the close of each quarter.

Report all quantities in units of 1,000 gallons.

Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.

Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.


The sums of Items 1 and 2 should equal the sums of Items 3 and 4.

Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5202		
STREET ADDRESS 5 Grove Street, Haddon Heights, N.J. 08035		CITY Haddon Heights		STATE N.J.
REPORTING QUARTER ENDING: March 31 <input type="checkbox"/> Sept. 30 June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990		
<div>Diversion from own sources</div> <div>Surface</div> <div>Wells</div> <div>Total</div> <div>Received from other systems- (see 6)</div> <div>Delivered to other systems (see 7)</div> <div>No diversion for territory served (see 8)</div>		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		None	None	None
		54,054	60,687	62,850
		54,054	60,687	62,850
		None	None	None
		18,325	15,045	16,018
35,729	45,642	46,832		
How is diversion determined? If estimated, give basis of estimate		All metered		
Systems from which water is received		None		
Systems to which water is delivered		Audubon Park and Mt. Ephraim		
Municipalities supplied in territory served		Haddon Heights, Audubon, Oaklyn, portions of Bellmawr, Haddonfield and Haddon Twp.		
Population supplied in territory served		33,014		
Summer population (if different than above)		N/A		
Number of service connections in territory served		9,308		
Number of service meters in territory served		9,308		

F. Shearman, Jr.
Name (Please Print)

Operations Manager
- Production
Title


Signature

5-11-90
Date

WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Static Level*</u>	<u>Total Head**</u>
31-5054	3/7/90	30	-70	

h to Water in Feet

Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

RIDE ANALYSIS

<u>Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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5054

/or other monitored contaminants

ersions by Formation

<u>m tion</u>	<u>Month</u>	<u>Diversion</u>
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Raritan-Magothy - same as front page.

NEW JERSEY WATER COMPANY
WESTERN DIVISION

PERMIT #5202

Well Permit No.	Well Name or Designation	Diversions in 1000 Gallons			Total
		First Month	Second Month	Third Month	
51-8	Haddon Heights - Well No. 11				
51-9	Haddon Heights - Well No. 12				
31-1124	Haddon Heights - Well No. 14	33,048	26,915	34,523	94,486
31-2434	Haddon Heights - Well No. 15	18,135	23,735	25,666	67,536
31-3375	Haddon Heights - Well No. 20	1,313	5,662		6,975
31-4798	Haddon Heights - Well No. 30	1,558	4,375	2,661	8,594
31-3308	Egbert - Well No. 18				
31-5054	Egbert - Well No. 35				
		54,054	60,687	62,850	177,591

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

- Reports must be filed within 30 days following the close of each quarter.
Report all quantities in units of 1,000 gallons.
Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5202		
STREET ADDRESS 5 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP	
REPORTING QUARTER ENDING: March 31 <input type="checkbox"/> Sept. 30 June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990		
DIVERSION FROM OWN SOURCES Surface Wells* Total		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		None	None	None
		72,495	79,354	69,507
		72,495	79,354	69,507
		None	None	None
		15,295	14,695	17,700
RECEIVED FROM OTHER SYSTEMS (see 6)		57,200	64,659	51,807
DELIVERED TO OTHER SYSTEMS (see 7)				
NET DIVERSION FOR TERRITORY SERVED (see 8)				
* List individual well usage on reverse side of form				
How is diversion determined? If estimated, give basis of estimate All metered				
Systems from which water is received None				
Systems to which water is delivered Audubon Park and Mt. Ephraim				
Municipalities supplied in territory served Haddon Heights, Audubon, Oaklyn, portions of Bellmawr, Haddonfield and Haddon Twp.				
Population supplied in territory served 29,198				
Summer population (if different than above) N/A				
Number of service connections in territory served 9,308				
Number of service meters in territory served 9,308				

Operations Manager
- Production
Title

Shearman, Jr.
Name (Please Print)

Signature

7-30-80
Date

IC WATER LEVEL DATAMethod Used — ☐ M Scope ☐ Air Line ☐ Tape (Check appropriate box)

<u>No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
	31-5054	6/13/90	30	102	72

* Water in Feet
** Measurements in Feet From Sea Level (Total Head = Site Elevation + Static Level)

RIE ANALYSIS

<u>Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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1-054

INDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
11	51-8	-	-	-
12	51-9	694	-	-
14	31-1124	36,086	36,424	34,175
15	31-2434	28,575	30,115	27,337
20	31-3375	-	7,635	6,135
30	31-4798	7,140	5,180	1,860
18	31-3308	-	-	-
35	31-5054	-	-	-
		72,495	79,354	69,507

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

Reports must be filed within 30 days following the close of each quarter.

Report all quantities in units of 1,000 gallons.

Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.

Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.

The sums of Items 1 and 2 should equal the sums of Items 3 and 4.

Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5202	
STREET ADDRESS 51 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month	2nd Month
		3rd Month	
1. Diversion from own sources		None	None
Surface		None	None
Wells*		73,107	50,669
Total		73,107	53,737
2. Received from other systems (see 6)		None	None
3. Delivered to other systems (see 7)		17,722	15,732
4. Net diversion for territory served (see 8)		55,385	38,005
5. How is diversion determined? If estimated, give basis of estimate		All metered	
6. Systems from which water is received		None	
7. Systems to which water is delivered		Audubon Park and Mt. Ephraim	
8. Municipalities supplied in territory served		Haddon Heights, Audubon, Oaklyn, portions of Bellmawr, Haddonfield and Haddon Twp.	
9. Population supplied in territory served		29,198	
Summer population (if different than above)		N/A	
10. Number of service connections in territory served		9,308	
11. Number of service meters in territory served		9,308	

. Shearman, Jr.
Name (Please Print)
Operations Manager
- Production
Title


Signature

10/31/90
Date

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

Well No.	Well Permit No.	Date Taken	Site Elevation	Level*	Total Head**
35	31-5054	8/7/90	30	103	-73

Depth to Water in Feet

Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

LAKE ANALYSIS

Well Permit No.	Date Taken	Analysis Results
31-5054	5/23/89	9

INDIVIDUAL WELL USAGE***

Well No.	Well Permit No.	Month 1	Month 2	Month 3
11	51-8	-	-	-
12	51-9	-	-	-
14	31-1124	34,785	30,396	29,784
15	31-2434	27,669	16,991	21,876
20	31-3375	9,944	2,442	2,077
30	31-4798	Nov 13 1990	840	-
18	31-3308	-	-	-
35	31-5054	73,107	50,669	53,737

SEPT. ENV. PROTECTION
DIV. OF WATER RESOURCES
WATER DIVISION

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

- Reports must be filed within 30 days following the close of each quarter.
Report all quantities in units of 1,000 gallons.
Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE		WATER ALLOCATION PERMIT #	
NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		5202	
STREET ADDRESS	CITY	STATE	ZIP
15 Grove Street, Haddon Heights, N.J.	08035		
FOR THE QUARTER ENDING:		SUMMARY OF DIVERSION IN UNITS OF 1,000	
March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31 <input type="checkbox"/>		1990	
FOR THE YEAR:			
Diversion from own sources		1st Month	2nd Month
Surface		None	None
Wells*		67,755	77,299
Total		67,755	77,299
Received from other systems (see 6)		None	None
Delivered to other systems (see 7)		16,711	15,533
Net diversion for territory served (see 8)		51,044	61,766
		56,301	
* List individual well usage on reverse side of form			
How is diversion determined? If estimated, give basis of estimate			
All metered			
Systems from which water is received			
None			
Systems to which water is delivered			
Audubon Park and Mt. Ephraim			
Municipalities supplied in territory served			
Haddon Heights, Audubon, Oaklyn, portions of Bellmawr, Haddonfield and Haddon Twp.			
Population supplied in territory served			
29,198			
Summer population (if different than above)			
N/A			
Number of service connections in territory served			
9,308			
Number of service meters in territory served			
9,308			

E. Shearman, Jr.
Name (Please Print)

Operations Manager
- Production
Title


Signature

1-31-91
Date

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
31-5054	12/17/90	30	100	-70

* Depth to Water in Feet
** Calculations in Feet From Sea Level (Total Head = Site Elevation - Static Level)

QUALITY ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-5054		

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
11	51-8	-	-	-
	51-9	-	-	-
	31-1124	33,163	-	-
15	31-2434	27,751	40,757	41,382
2	31-3375	6,106	13,288	22,723
3	31-4798	735	23,254	8,189
18	31-3308	-	-	-
35	31-5054	-	-	-
		67,755	77,299	72,294

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

- Reports must be filed within 30 days following the close of each quarter.
Report all quantities in units of 1,000 gallons.
Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5202	
STREET ADDRESS 1 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP
OF THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1991	
1. Diversion from own sources		SUMMARY OF DIVERSION IN UNITS OF 1,000	
Surface		1st Month	2nd Month
Wells*		None	None
Total		71,868	62,753
2. Received from other systems (see 6)		71,868	72,377
3. Delivered to other systems (see 7)		None	None
4. Net diversion for territory served (see 8)		13,863	14,775
How is diversion determined? If estimated, give basis of estimate		58,005	57,921
		* List individual well usage on reverse side of form	
		All metered	
5. Systems from which water is received None			
6. Systems to which water is delivered Audubon Park and Mt. Ephraim			
7. Municipalities supplied in territory served Haddon Heights, Audubon, Oaklyn, portions of Bellmawr, Haddonfield and Haddon Twp.			
8. Population supplied in territory served 33,756			
9. Summer population (if different than above) N/A			
10. Number of service connections in territory served 9,368			
11. Number of service meters in territory served 9,368			

Shearman, Jr.
Name (Please Print) Title

Operations Manager
- Production


Signature

4-22-91
Date

TIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
5	31-5054	2/18/91	30	95	-65

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

QUALITY ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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31-5054

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
11	51-8	-	-	-
	51-9	-	-	-
	31-1124	32,521	31,191	33,201
15	31-2434	35,042	28,679	34,272
	31-3375	4,305	2,883	2,720
	31-4798	-	-	2,184
18	31-3308	-	-	-
35	31-5054	-	-	-
		<u>71,868</u>	<u>62,753</u>	<u>72,377</u>

Units of 1,000

WATERA FILE - 04/24/91

NUMBER:	5197	ZONE:	1
NAME:	NEW JERSEY-AMERICAN WATER CO.	PINELAND:	N
STREET:	515 GROVE STREET	WATERUSE:	P
CITY:	HADDON HEIGHTS	MGY:	2156.0
STATE:	NJ	MBM:	257.610
ZIP:	08035-	GPM:	6695
ATTN:	HADDON SYSTEM	PFLOW:	0.0
PHONE:	(609)547-1700	EFDATE:	04/24/1991
CONTACT:	JOSEPH DUGANDZIC	EXDATE:	03/31/1995
CTITLE:	D	PERMTYPE:	G
CPHONE:	(609)547-1700	MGD:	9.31
COUNTY1:	5 07	HEARING:	N
COUNTY2:		STAFF:	LGS
BASIN1:	D	UPDATE:	03/12/1991
BASIN2:		FLAG:	
CRITAREA:	2		

NOTES1: WESTERN DIVISION HADDON SYSTEM

NOTES2:

NOTES3:

WSOURCE FILE - 04/24/91

NUMBER: 5197 PINELAND: N
SOURCEID: 3104743 ELEV: 70
LOCID: MAGNOLIA16 ELEVACC: 1
USGSUID: 070315 DEPTH: 510
LAT: 395134 DOPEN: 425
LON: 750229 BOPEN: 510
LLACC: F GEO1: GKMR
NJGRID: 3112534 GEO2:
COUNTY: 07 DIAMETER: 8
MUN: 23 WELLDATE: 09/11/1964
BASIN: DDEL CAPACITY: 1050
CRITAREA: 2 MGM: 0.000
ZONE: 1 FLAG: X

WSOURCE FILE -- 04/24/91

NUMBER: 5197 PINELAND: N
SOURCEID: 3105100 ELEV: 70
LOCID: MAGNOLIA33 ELEVACC: 1
USGSUID: 070316 DEPTH: 348
LAT: 395134 DOPEN: 271
LON: 750230 BOPEN: 348
LLACC: F GEO1: GKMR
NJGRID: 3112537 GEO2:
COUNTY: 07 DIAMETER: 12
MUN: 23 WELLDATE: 03/10/1967
BASIN: DDEL CAPACITY: 1050
CRITAREA: 2 MGM: 0.000
ZONE: 1 FLAG: X

WSOURCE FILE - 04/24/91

NUMBER:	5197	PINELAND:	N
SOURCEID:	5100015	ELEV:	27
LOCID:	RMEDE 7	ELEVACC:	1
USGSUID:	070403	DEPTH:	318
LAT:	395055	DOPEN:	265
LON:	750420	BOPEN:	313
LLACC:	F	GEO1:	GKMR
NUGRID:	3112465	GEO2:	
COUNTY:	07	DIAMETER:	
MUN:	30	WELLDATE:	09/15/1921
BASIN:	DDEL	CAPACITY:	325
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5197	PINELAND:	N
SOURCEID:	3103307	ELEV:	68
LOCID:	RMEDE 19	ELEVACC:	1
USGSUID:	070404	DEPTH:	332
LAT:	395055	DOPEN:	297
LON:	750420	BOPEN:	338
LLACC:	F	GEO1:	GKMR
NUGRID:	3112465	GEO2:	
COUNTY:	07	DIAMETER:	12
MUN:	30	WELLDATE:	04/28/1958
BASIN:	DDEL	CAPACITY:	770
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5197	PINELAND:	N
SOURCEID:	3104756	ELEV:	60
LOCID:	OTTER 29	ELEVACC:	1
USGSUID:	070273	DEPTH:	722
LAT:	395030	DOPEN:	612
LON:	750347	BOPEN:	712
LLACC:	F	GEO1:	GKMR
NJGRID:	3112574	GEO2:	
COUNTY:	07	DIAMETER:	10
MUN:	15	WELLDATE:	01/22/1965
BASIN:	DDEL	CAPACITY:	1050
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5197	PINELAND:	N
SOURCEID:	3105041	ELEV:	58
LOCID:	OTTER 34	ELEVACC:	
USGSUID:	070272	DEPTH:	377
LAT:	395028	DOPEN:	288
LON:	750344	BOPEN:	369
LLACC:	F	GEO1:	GKMR
NJGRID:	3112272	GEO2:	
COUNTY:	07	DIAMETER:	12
MUN:	15	WELLDATE:	01/26/1967
BASIN:	DDEL	CAPACITY:	1050
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5197	PINELAND:	N
SOURCEID:	3105216	ELEV:	61
LOCID:	OTTER 19	ELEVACC:	1
USGSUID:	070274	DEPTH:	349
LAT:	345030	DOPEN:	249
LON:	750347	BOPEN:	349
LLACC:	F	GEO1:	GKMR
NUGRID:	3113222	GEO2:	
COUNTY:	07	DIAMETER:	12
MUN:	10	WELLDATE:	04/10/1992
BASIN:	DDEL	CAPACITY:	1400
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

WSOURCE FILE - 04/24/91

NUMBER:	5197	PINELAND:	N
SOURCEID:	PROPOSED	ELEV:	70
LOCID:	MAGNOLIA64	ELEVACC:	1
USGSUID:		DEPTH:	
LAT:	395133	DOPEN:	
LON:	750230	BOPEN:	
LLACC:	F	GEO1:	GKMR
NUGRID:	3112537	GEO2:	
COUNTY:	07	DIAMETER:	
MUN:	23	WELLDATE:	/ /
BASIN:	DDEL	CAPACITY:	1040
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	X

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5197													
STREET ADDRESS 515 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP												
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990													
<table><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td></td><td>Wells</td></tr><tr><td></td><td>Total</td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr></table>		1. Diversion from own sources	Surface		Wells		Total	2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface												
			Wells												
			Total												
		2. Received from other systems (see 6)													
		3. Delivered to other systems (see 7)													
4. Net diversion for territory served (see 8)															
1st Month	2nd Month	3rd Month													
None	None	None													
106,750	93,074	113,118													
106,750	93,074	113,118													
None	None	None													
560	525	541													
106,190	92,549	112,577													

5. How is diversion determined? If estimated, give basis of estimate All metered

6. Systems from which water is received None

7. Systems to which water is delivered Garden State Water Company
Magnolia, Runnemede, Barrington, Lawnside and
portions of Gloucester Township

8. Municipalities supplied in territory served

9. Population supplied in territory served 49,731
Summer population (if different than above) N/A

10. Number of service connections in territory served 12,658

11. Number of service meters in territory served 12,658

A. E. Shearman, Jr.
Name (Please Print)

Operations Manager
- Production
Title

Signature

Date

5-11-90

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Static Level*</u>	<u>Total Head**</u>
19	31-3307	1/17/90	68	-84	
34	31-5041	1/24/90	58	-92	

Depth to Water in Feet

* Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-3307		
31-5041		

**and/or other monitored contaminants

Diversions by Formation

<u>Formation</u>	<u>Month</u>	<u>Diversion</u>
Raritan-Magothy	1st	106,750
	2nd	930,740
	3rd	113,118
Mt. Laurel-Wenonah	1st	
	2nd	
	3rd	

Date March 31, 1990NEW JERSEY WATER COMPANY
WESTERN DIVISIONPERMIT #5197

Well Permit No.	Well Name or Designation	Diversion in 1000 Gallons			Total
		First Month	Second Month	Third Month	
31-4743	Magnolia - Well No. 16	18,558	1,115	9,182	28,855
31-5100	Magnolia - Well No. 33	18,559	1,115	12,642	32,316
51-51	Runnemedede - Well No. 7				
31-3307	Runnemedede - Well No. 19				
31-4756	Otterbrook - Well No. 29	15,183	19,848	19,278	54,309
31-5041	Otterbrook - Well No. 34	47,124	50,820	39,165	137,109
31-5226	Otterbrook - Well No. 39	7,326	20,176	32,851	60,353
		106,750	93,074	113,118	312,942

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5197													
STREET ADDRESS 515 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP												
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input checked="" type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990													
<table><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td></td><td>Wells*</td></tr><tr><td></td><td>Total</td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr></table>		1. Diversion from own sources	Surface		Wells*		Total	2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface												
			Wells*												
			Total												
		2. Received from other systems (see 6)													
		3. Delivered to other systems (see 7)													
4. Net diversion for territory served (see 8)															
1st Month		2nd Month	3rd Month												
None		None	None												
109,241		114,356	130,180												
109,241		114,356	130,180												
None		None	None												
650		625	786												
108,591		113,731	129,394												

* List individual well usage on reverse side of form

5. How is diversion determined? If estimated, give basis of estimate
All metered

6. Systems from which water is received
None

7. Systems to which water is delivered
Garden State Water Company

8. Municipalities supplied in territory served
Magnolia, Runnemede, Barrington, Lawnside and portions of Gloucester Township

9. Population supplied in territory served
50,012

Summer population (if different than above)
N/A

10. Number of service connections in territory served
12,658

11. Number of service meters in territory served
12,658

Operations Manager
- Production
TitleA. E. Shearman, Jr.
Name (Please Print)
Signature7-30-90
Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
19	31-3307	6/1/90	68	146	-78
34	31-5041	6/19/90	58	147	-89

Depth to Water in Feet

Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-3307		
31-5041		

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
16	31-4743	-	360	2,532
33	31-5100	7,419	11,796	10,895
7	51-51	-	-	-
19	31-3307	-	-	28,471
29	31-4756	19,672	16,130	13,041
34	31-5041	38,409	40,701	36,204
39	31-5226	43,741	45,369	39,037
		109,241	114,356	130,180

***Units of 1,000

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5197	
STREET ADDRESS 515 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month	2nd Month
		None	None
		157,617	112,642
		157,617	112,642
		None	None
		982	1,174
		156,635	111,468
			123,851
1. Diversion from own sources		Surface	None
		Wells*	157,617
		Total	157,617
2. Received from other systems (see 6)			None
3. Delivered to other systems (see 7)			982
4. Net diversion for territory served (see 8)			156,635
5. How is diversion determined? If estimated, give basis of estimate		All metered	
6. Systems from which water is received None			
7. Systems to which water is delivered Garden State Water Company			
8. Municipalities supplied in territory served Magnolia, Runnemede, Barrington, Lawnside and portions of Gloucester Township			
9. Population supplied in territory served 50,012			
Summer population (if different than above) N/A			
10. Number of service connections in territory served 12,658			
11. Number of service meters in territory served 12,658			

* List individual well usage on reverse side of form
All metered

A. E. Shearman, Jr.
Name (Please Print)

Operations Manager
- Production
Title


Signature

10/31/90
Date

5197

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
19	31-3307	8/7/90	68	151	-83
34	31-5041	7/26/90	58	148	-90

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-3307	7/3/90	4
31-5041	7/18/89	7

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
16	31-4743	10,803	13,349	26,024
33	31-5100	13,819	18,350	36,000
7	51-51	-	-	-
19	31-3307	29,761	28,921	19,315
29	31-4756	19,357	7,318	5,859
34	31-5041	16,284	16,284	14,523
39	31-5226	49,248	28,420	23,040
		157,617	112,642	124,761

Nov 13 1990

DEPT. ENV. PROTECTION
STATE OF N.J.
WATER SOURCES

***Units of 1,000

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5197															
STREET ADDRESS 515 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP														
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31		FOR THE YEAR: 1990															
<table><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td></td><td>Wells*</td></tr><tr><td></td><td>Total</td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr><tr><td>5. How is diversion determined? If estimated, give basis of estimate</td><td></td></tr></table>		1. Diversion from own sources	Surface		Wells*		Total	2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		5. How is diversion determined? If estimated, give basis of estimate		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface														
			Wells*														
			Total														
		2. Received from other systems (see 6)															
		3. Delivered to other systems (see 7)															
		4. Net diversion for territory served (see 8)															
5. How is diversion determined? If estimated, give basis of estimate																	
1st Month		2nd Month	3rd Month														
None		None	None														
135,271		95,183	99,566														
135,271		95,183	99,566														
None		None	None														
785		707	522														
134,486		94,476	99,044														
		* List individual well usage on reverse side of form															
		All metered															
6. Systems from which water is received None																	
7. Systems to which water is delivered Garden State Water Company																	
8. Municipalities supplied in territory served Magnolia, Runnemede, Barrington, Lawnside and portions of Gloucester Township																	
9. Population supplied in territory served 50,012																	
Summer population (if different than above) N/A																	
10. Number of service connections in territory served 12,658																	
11. Number of service meters in territory served 12,658																	

A. E. Shearman, Jr.
Name (Please Print)Operations Manager
- Production
Title

Signature

Date

1-31-91

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
19	31-3307	11/7/90	68	155	-87
34	31-5041	12/12/90	58	149	-91

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-3307		
31-5041		

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
16	31-4743	26,059	154	4,581
33	31-5100	25,595	-	-
7	51-51	-	-	-
19	31-3307	-	-	-
29	31-4756	13,907	14,792	14,994
34	31-5041	29,484	37,340	38,690
39	31-5226	40,226	42,897	40,301
		135,271	95,183	99,566

***Units of 1,000

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5197		
STREET ADDRESS 515 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP	
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1991		
1. Diversion from own sources Surface Wells* Total 2. Received from other systems (see 6) 3. Delivered to other systems (see 7) 4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		None	None	None
		98,654	88,882	120,790
		98,654	88,882	120,790
		None	None	None
		638	577	501
		98,016	88,305	120,289
5. How is diversion determined? If estimated, give basis of estimate <u>All metered</u> <i>* List individual well usage on reverse side of form</i>				
6. Systems from which water is received <u>None</u>				
7. Systems to which water is delivered <u>Garden State Water Company</u>				
8. Municipalities supplied in territory served <u>Magnolia, Runnemede, Barrington, Lawnside and portions of Gloucester Township</u>				
9. Population supplied in territory served <u>42,458</u>				
Summer population (if different than above) <u>N/A</u>				
10. Number of service connections in territory served <u>12,749</u>				
11. Number of service meters in territory served <u>12,749</u>				

A. E. Shearman, Jr.
Name (Please Print)

Operations Manager
- Production
Title


Signature

Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
19	31-3307	2/26/91	68	150	-82
34	31-5041	3/22/91	58	155	-97

* Depth to Water in Feet

* Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
------------------------	-------------------	-------------------------

31-3307

31-5041

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
16	31-4743	4,023	5,586	9,063
33	31-5100	-	990	10,501
7	51-51	-	-	-
19	31-3307	-	-	-
29	31-4756	19,577	14,419	20,026
34	31-5041	34,040	34,367	45,372
39	31-5226	41,014	33,520	35,828
		98,654	88,882	120,790

***Units of 1,000

DWR-017 B

WATERA FILE - 06/07/90

NUMBER:	5319	ZONE:	1
NAME:	WESTVILLE BOROUGH	PINELAND:	N
STREET:	114 CROWN POINT ROAD	WATERUSE:	F
CITY:	WESTVILLE	MGY:	280.0
STATE:	NJ	QGM:	37.500
ZIP:	08093-	GRM:	2750
ATTN:	WILLIAM C. PACKER	PFLOW:	0.0
PHONE:	(609)456-0030	EFDATE:	05/22/1990
CONTACT:	WILLIAM C. PACKER	EXDATE:	07/01/1993
CTITLE:	S	PERMTYPE:	G
CPHONE:	(609)456-7785	MGD:	1.21
COUNTY1:	15	HEARING:	N
COUNTY2:		STAFF:	BAC
BASIN1:	DBIG	UPDATE:	10/26/1989
BASIN2:		FLAG:	
CRITAREA:	2		

NOTES1: 168.368 FROM WELLS ONCE ALTERNATIVE AVAILABLE

NOTES2:

NOTES3:

WSOURCE FILE - 06/07/90

NUMBER:	5319	PINELAND:	N
SOURCEID:	3103418	ELEV:	20
LOCID:	4	ELEVACC:	
USGSUID:	150327	DEPTH:	313
LAT:	395221	DOPEN:	286
LON:	750737	BOPEN:	313
LLACC:	F	GEO1:	GKMR
NJGRID:	3111375	GEO2:	
COUNTY:	15	DIAMETER:	10
MUN:	21	WELLDATE:	12/19/1957
BASIN:	D	CAPACITY:	750
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 06/07/90

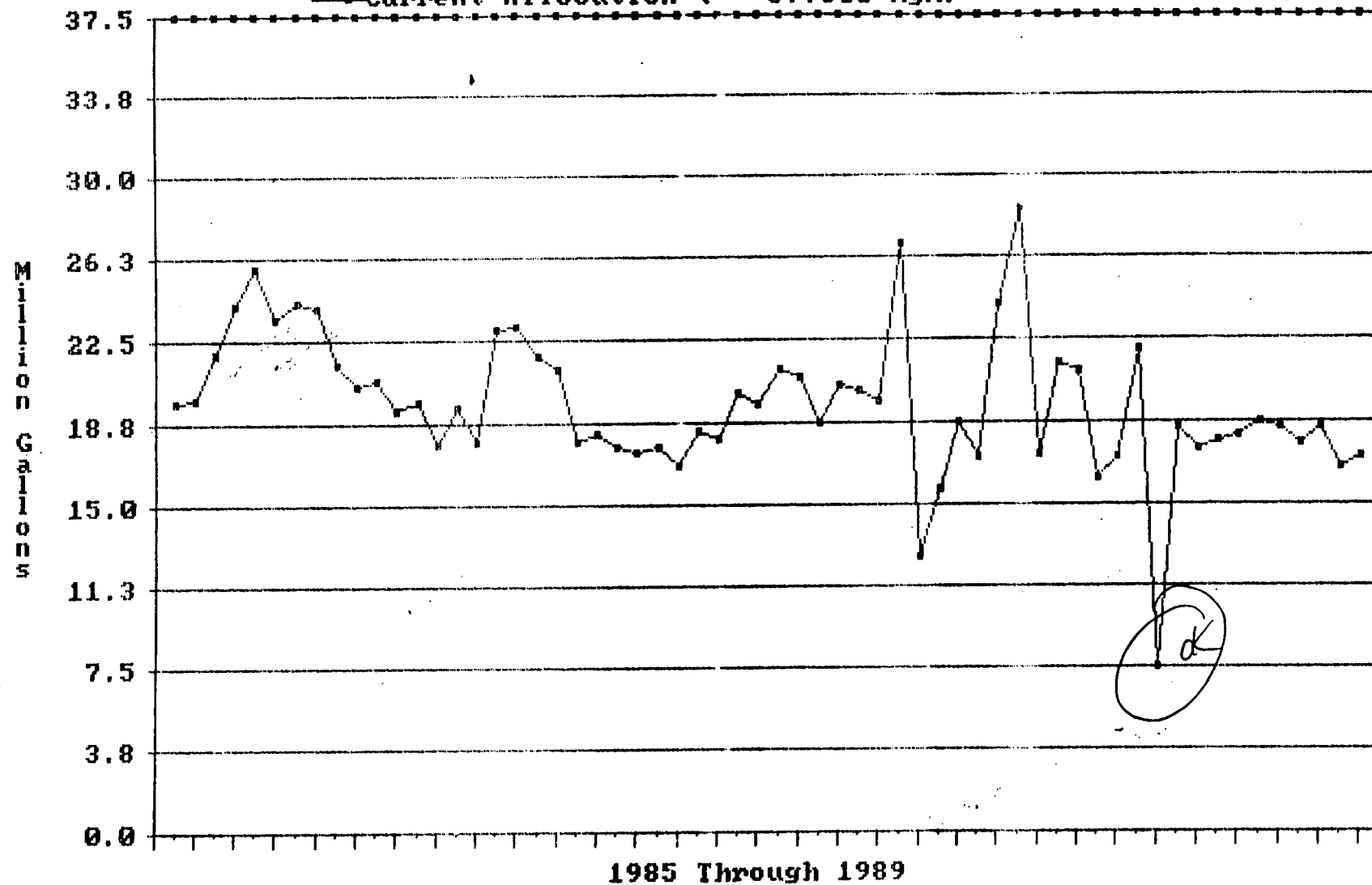
NUMBER:	5319	PINELAND:	N
SOURCEID:	3105689	ELEV:	20
LOCID:	5	ELEVACC:	
USGSUID:	150326	DEPTH:	274
LAT:	395216	DOPEN:	213
LON:	750739	BOPEN:	274
LLACC:	F	GEO1:	GKMR
NJGRID:	3111375	GEO2:	
COUNTY:	15	DIAMETER:	12
MUN:	21	WELLDATE:	06/15/1971
BASIN:	D	CAPACITY:	1000
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WSOURCE FILE - 06/07/90

NUMBER:	5319	PINELAND:	N
SOURCEID:	3117923	ELEV:	20
LOCID:	6	ELEVACC:	
USGSUID:	150434	DEPTH:	317
LAT:	395224	DOPEN:	267
LON:	750736	BOPEN:	317
LLACC:	F	GEO1:	GKMR
NJGRID:	3111375	GEO2:	
COUNTY:	15	DIAMETER:	12
MUN:	21	WELLDATE:	06/05/1980
BASIN:	D	CAPACITY:	1000
CRITAREA:	2	MGM:	0.000
ZONE:	1	FLAG:	

WATER USAGE BY WESTVILLE BOROUGH (5319)

—•— Current Allocation (37.500 mgm)



April 16, 1990
Date

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Static Level*</u>	<u>Total Head**</u>
#4	31-3418	1-20-90		100'	
#5	31-5689	2-8-90		94'	
#6	31-17923	3-21-90		97'	

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-3418	2-10-90	18 mg/l
31-5689	2-18-90	22 mg/l
31-17923	2-26-90	20 mg/l

	<u>1ST MONTH</u>	<u>2ND MONTH</u>	<u>3RD MONTH</u>
31-3418	5.417	2.500	1.650
31-5689	11.636	14.747	15.401
31-17923	0.0	0.0	0.0

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>BOROUGH OF WESTVILLE</u>		WATER ALLOCATION PERMIT # <u>5319</u>	
STREET ADDRESS <u>114 CROWN PT. ROAD</u>		CITY <u>WESTVILLE</u>	STATE <u>N.J.</u>
ZIP <u>08093</u>			
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input checked="" type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month	2nd Month
		3rd Month	
1. Diversion from own sources			
Surface			
3 Wells*		<u>16.965</u>	<u>20.312</u>
Total		<u>16.965</u>	<u>20.312</u>
2. Received from other systems (sec 6)		<u>NONE</u>	<u>NONE</u>
3. Delivered to other systems (sec 7)		<u>NONE</u>	<u>NONE</u>
4. Net diversion for territory served (see 8)		<u>16.965</u>	<u>20.312</u>
		<u>18.193</u>	
5. How is diversion determined? If estimated, give basis of estimate		* List individual well usage on reverse side of form	
<u>FLOW METERS AT WELL STATIONS</u>			
6. Systems from which water is received		<u>3 - 800 GPM. WELLS</u>	
7. Systems to which water is delivered		<u>0.6 M.G.D. ELEVATED TANK</u>	
8. Municipalities supplied in territory served		<u>BOARD OF WESTVILLE, PARTS OF DEPTFORD</u>	
9. Population supplied in territory served		<u>7000</u>	
Summer population (if different than above)			
10. Number of service connections in territory served		<u>1893</u>	
11. Number of service meters in territory served		<u>10070</u>	

William C. Packer
Name (Please Print)SUPT. PUBLIC WORKS William C. Packer
Title

Signature

July 16, 1990
Date

5319

STATIC WATER LEVEL DATA

Method Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
4	31-3418	4-20-90		105'	
5	31-5689	5-3-90		96'	
6	31-17923	6-17-90		98'	

* Depth to Water in Feet
 Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-3418	5-16-90	22 mg/l
31-5689	5-17-90	30 mg/l
31-17923	5-18-90	24 mg/l

DIVISION OF WATER RESOURCES
 05 JUN 1990

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
31-3418	#4	2.208	2.520	0
31-5689	#5	6.661	10.635	9.958
31-17923	#6	8.096	7.157	8.235

***Units of 1,000

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE: <u>BOROUGH OF WESTVILLE WATER DEPT</u>		WATER ALLOCATION PERMIT # <u>5319</u>	
STREET ADDRESS <u>114 CROWN PT. RD.</u>		CITY <u>WESTVILLE</u>	STATE <u>N.J.</u>
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>	
		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1st Month	2nd Month
		3rd Month	
1. Diversion from own sources			
Surface			
<u>3</u> Wells*		<u>20,262,000</u>	<u>18,325,000</u>
Total		<u>20,262,000</u>	<u>18,325,000</u>
2. Received from other systems (see 6)		<u>NONE</u>	<u>NONE</u>
3. Delivered to other systems (see 7)		<u>NONE</u>	<u>NONE</u>
4. Net diversion for territory served (see 8)		<u>20,262,000</u>	<u>18,325,000</u>
5. How is diversion determined? If estimated, give basis of estimate		<u>FLOW METERS AT WELL STATIONS.</u>	
6. Systems from which water is received		<u>3-800 GPM WELLS</u>	
7. Systems to which water is delivered		<u>0.6 MGD ELEVATED TANK.</u>	
8. Municipalities supplied in territory served		<u>BOARD OF WESTVILLE, PARTS OF DEPTFORD & WEST DEPTFORD TWPS.</u>	
9. Population supplied in territory served		<u>7000</u>	
Summer population (if different than above)			
10. Number of service connections in territory served		<u>1895</u>	
11. Number of service meters in territory served		<u>10070</u>	

* List individual well usage on reverse side of form

WILLIAM C. PACHER
Name (Please Print)

SUPR. PUBLIC WORKS
Title

William C. Pacher
Signature

OCT. 11, 1990
Date

5319

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
4	31-3418	8-10-90		108'	
5	31-5689	7-15-90		98'	
6	31-17923	9-21-90		100'	

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-3418	8-26-90	20 mg/l
31-5689	8-26-90	25 mg/l
31-17923	8-26-90	22 mg/l

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
#4	31-3418	1.291	5.658	7.170
#5	31-5689	1.89	2.667	9.782
#6	31-17923	0.0	0.0	0.0

 DEPT. ENV. PROTECTION
 DIV. OF WATER RESOURCES
 WATER SECTION

***Units of 1,000

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>BOROUGH OF WESTVILLE WATER DEPT.</u>		WATER ALLOCATION PERMIT # <u>5319</u>													
STREET ADDRESS <u>114 CROWN POINT RD.</u>		CITY <u>WESTVILLE</u>	STATE <u>N.J.</u>												
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1990</u>													
<table border="1"><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td><u>3</u> <u>Wells*</u></td><td></td></tr><tr><td>Total</td><td></td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr></table>		1. Diversion from own sources	Surface	<u>3</u> <u>Wells*</u>		Total		2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface												
		<u>3</u> <u>Wells*</u>													
		Total													
		2. Received from other systems (see 6)													
3. Delivered to other systems (see 7)															
4. Net diversion for territory served (see 8)															
		1st Month	2nd Month	3rd Month											
		<u>17.548</u>	<u>15.952</u>	<u>16.126</u>											
		<u>17.548</u>	<u>15.952</u>	<u>16.126</u>											
		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>											
		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>											
		<u>17.548</u>	<u>15.952</u>	<u>16.126</u>											
5. How is diversion determined? If estimated, give basis of estimate		* List individual well usage on reverse side of form													
<u>FLOW METERS AT WELL STATIONS</u>															
6. Systems from which water is received <u>3 - 800 GPM WELLS</u>															
7. Systems to which water is delivered <u>0.10 mgd ELEVATED STORAGE TANK</u>															
8. Municipalities supplied in territory served <u>BORO OF WESTVILLE, PARTS OF DEPTFORD & WEST DEPTFORD TOWNS.</u>															
9. Population supplied in territory served <u>7000</u>															
Summer population (if different than above) _____															
10. Number of service connections in territory served <u>1896</u>															
11. Number of service meters in territory served <u>10070</u>															

WILLIAM C. PACHA SUPR. PUBLIC WORKS William C. Pachy Jan. 15, 1991
Name (Please Print) Title Signature Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
4	31-3418	10-12-90		109'	
5	31-5689	11-25-90		100'	
6	31-17923	12-7-90		97'	

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-3418	12-26-90	22.5 mg/l
31-5689	12-12-90	31 mg/l
31-17923	12-17-90	50 mg/l

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
#4	31-3418	6.179	6.867	6.945
#5	31-5689	9.947	9.085	10.603
#6	31-17923			0

JAN 22 '91

DEPT. OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

***Units of 1,000

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE <u>BOROUGH OF WESTVILLE WATER DEPT.</u>		WATER ALLOCATION PERMIT # <u>5319</u>													
STREET ADDRESS <u>114 CROWN POINT RD.</u>		CITY <u>WESTVILLE</u>	STATE <u>N.J.</u>												
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: <u>1991</u>													
<table border="1"><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td><u>3</u> Wells*</td><td></td></tr><tr><td>Total</td><td></td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr></table>		1. Diversion from own sources	Surface	<u>3</u> Wells*		Total		2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface												
		<u>3</u> Wells*													
		Total													
		2. Received from other systems (see 6)													
3. Delivered to other systems (see 7)															
4. Net diversion for territory served (see 8)															
		1st Month	2nd Month	3rd Month											
		<u>16.356</u>	<u>14.648</u>	<u>16.175</u>											
		<u>16.356</u>	<u>14.648</u>	<u>16.175</u>											
		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>											
		<u>NONE</u>	<u>NONE</u>	<u>NONE</u>											
		<u>16.356</u>	<u>14.648</u>	<u>16.175</u>											
5. How is diversion determined? If estimated, give basis of estimate		* List individual well usage on reverse side of form													
<u>FLOW METERS AT WELL STATIONS</u>															
6. Systems from which water is received		<u>3 - 800 G.P.M. WELLS</u>													
7. Systems to which water is delivered		<u>0.600 M.G.D. ELEVATED TANK.</u>													
8. Municipalities supplied in territory served		<u>BORO OF WESTVILLE, PARTS OF DEPTFORD & WEST DEPTFORD TOWNS.</u>													
9. Population supplied in territory served		<u>7000</u>													
Summer population (if different than above)															
10. Number of service connections in territory served		<u>1897</u>													
11. Number of service meters in territory served		<u>10070</u>													

WILLIAM C. PACKER SUPT. PUBLIC WORKS William C. Packer May 11, 1991
Name (Please Print) Title Signature Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
4	31-3418	1-18-91		105'	
5	31-5689	2-7-91		101'	
6	31-17923	3-20-91		95'	

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
31-3418	2-20-91	20 mg/l
31-5689	2-20-91	27 mg/l
31-17923	2-20-91	23 mg/l

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
4	31-3418	6.847	6.046	12.117
5	31-5689	9.509 MAY 14 1991	8.602	4.058
6	31-17923	0.0	0.0	0.0

***Units of 1,000

DWR-017 B

WATERA FILE - 11/19/87

NUMBER:	5200	ZONE:	1
NAME:	NEW JERSEY WATER COMPANY	PINELAND:	N
STREET:	500 GROVE STREET	WATERUSE:	P
CITY:	HADDON HEIGHTS	MGY:	0.0
STATE:	NJ	MGM:	318.800
ZIP:	08035-	GPM:	8134
ATTN:	HADDON DIST./LAUREL SPRIN	PFLOW:	0.0
PHONE:	(609)547-1700	EFDATE:	10/29/1987
CONTACT:	L.W. BROKAW	EXDATE:	07/31/1992
CTITLE:		PERMTYPE:	G
CPHONE:	() -	MGD:	8.70
COUNTY1:	07	HEARING:	N
COUNTY2:		STAFF:	MBN
BASIN1:	DBIG	UPDATE:	11/19/1987
BASIN2:		FLAG:	
CRITAREA:	2		

NOTES1: HADDON DISTRICT - LAUREL SPRINGS

NOTES2:

NOTES3:

WSOURCE FILE - 11/19/87

NUMBER: 5200	ZONE: 1
SOURCEID: 3104723	PINELAND: N
LOCID: LAUREL 15	GEO1: GKMR
USGSUID: 070311	GEO2:
LAT: 394928	DEPTH: 473
LON: 750027	DOPEN: 395
LLACC: F	BOPEN: 473
NJGRID: 3112938	DIAMETER: 8
COUNTY: 07	WELLDATE: 07/24/1964
MUN: 20	CAPACITY: 625
BASIN: D	MGM: 0.000
CRITAREA: 2	FLAG:

WSOURCE FILE - 11/19/87

NUMBER: 5200	ZONE: 1
SOURCEID: 3102360	PINELAND: N
LOCID: SOMERDAL14	GEO1: GKMR
USGSUID: 070410	GEO2:
LAT: 395041	DEPTH: 441
LON: 750056	DOPEN: 398
LLACC: F	BOPEN: 441
NJGRID: 3112682	DIAMETER: 10
COUNTY: 07	WELLDATE: 05/ /1956
MUN: 31	CAPACITY: 500
BASIN: D	MGM: 0.000
CRITAREA: 2	FLAG:

total pop of 40,242
 ÷ 12 wells = 3,353
 people per well
 Somerdale 14 = 3,353
 people served

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, TRENTON, N.J. 08625

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY		WATER ALLOCATION PERMIT # 5200											
STREET ADDRESS 515 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP										
FOR THE QUARTER ENDING: <input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990											
<table><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td>Wells</td></tr><tr><td>Total</td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr></table>		1. Diversion from own sources	Surface	Wells	Total	2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface										
		Wells											
		Total											
		2. Received from other systems (see 6)											
3. Delivered to other systems (see 7)													
4. Net diversion for territory served (see 8)													
		1st Month	2nd Month	3rd Month									
		None	None	None									
		163,631	147,563	147,072									
		163,631	147,563	147,072									
		None	None	None									
		None	None	None									
		163,631	147,563	147,072									
5. How is diversion determined? If estimated, give basis of estimate All metered													
6. Systems from which water is received None													
7. Systems to which water is delivered None													
8. Municipalities supplied in territory served Laurel Springs, Somerdale, Gibbsboro, Hi-Nella, Stratford, Lindenwold and portion of Clementon													
9. Population supplied in territory served 40,242													
Summer population (if different than above) N/A													
10. Number of service connections in territory served 8,693													
11. Number of service meters in territory served 8,693													

A. E. Shearman, Jr.
Name (Please Print)Operations Manager
- Production
Title

Signature

Date

5-11-90

Date March 31, 1990NEW JERSEY WATER COMPANY
WESTERN DIVISIONPERMIT #5200

Well Permit No.	Well Name or Designation	Diversions in 1000 Gallons			Total
		First Month	Second Month	Third Month	
51-11	Laurel Springs - Well No. 1				
51-12	Laurel Springs - Well No. 4				
51-13	Laurel Springs - Well No. 8				
51-14	Laurel Springs - Well No. 10				
31-1363	Laurel Springs - Well No. 13				
31-4723	Laurel Springs - Well No. 15				
→ 31-2360	Somerdale Road - Well No. 14				
31-5949	Gibbsboro - Well No. 41	21,167	18,731	20,671	60,569
31-5950	Gibbsboro - Well No. 42	71,232	64,416	42,216	177,864
31-5951	Gibbsboro - Well No. 43	71,232	64,416	70,872	206,520
31-29320	Gibbsboro - Well No. 56			1,281	1,281
31-29319	Gibbsboro - Well No. 57			12,032	12,032
		163,631	147,563	147,072	458,266

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

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4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5200		
STREET ADDRESS 515 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input checked="" type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990		
1. Diversion from own sources <div>Surface</div> <div>Wells*</div> <div>Total</div>		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		None	None	None
		152,157	153,433	189,067
		152,157	153,433	189,067
2. Received from other systems (see 6)		None	None	None
3. Delivered to other systems (see 7)		None	None	None
4. Net diversion for territory served (see 8)		152,157	153,433	189,067
5. How is diversion determined? If estimated, give basis of estimate All metered				
6. Systems from which water is received None				
7. Systems to which water is delivered None				
8. Municipalities supplied in territory served Laurel Springs, Somerdale, Gibbsboro, Hi-Nella, Stratford, Lindenwold and portion of Clementon				
9. Population supplied in territory served 41,158				
Summer population (if different than above) N/A				
10. Number of service connections in territory served 8,693				
11. Number of service meters in territory served 8,693				

* List individual well usage on reverse side of form

A. E. Shearman, Jr.
Name (Please Print)Operations Manager
- Production
Title

Signature

7-30-90
Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
1	51-11	5/4/90	77	27	+50
15	31-4723	5/4/90	78	176	-98

Depth to Water in Feet

* Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
51-11		
31-4723		

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
1	51-11	-	-	4,926
4	51-12	-	-	4,922
8	51-13	-	-	-
10	51-14	-	-	5,098
13	31-1363	-	-	5,038
15	31-4723	-	-	5,065
60		-	-	5,880
61		-	-	6,720
14 ←	31-2360	-	-	1,074
41	31-5949	25,976	3,608	328
42	31-5950	36,680	55,375	63,097
43	31-5951	64,713	65,885	64,080
56	31-29320	13,692	14,636	10,559
57	31-29319	11,097	13,929	12,280
		152,157	153,433	189,067

***Units of 1,000

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

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NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5200		
STREET ADDRESS 515 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE	
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input checked="" type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31		FOR THE YEAR: 1990		
1. Diversion from own sources Surface Wells* Total 2. Received from other systems (see 6) 3. Delivered to other systems (see 7) 4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
		None	None	None
		240,833	237,866	203,296
		240,833	237,866	203,296
		None	None	None
5. How is diversion determined? If estimated, give basis of estimate _____ _____		None	None	None
		None	None	None
		240,833	237,866	203,296
* List individual well usage on reverse side of form All metered				
6. Systems from which water is received None				
7. Systems to which water is delivered None				
8. Municipalities supplied in territory served Laurel Springs, Somerdale, Gibbsboro, Hi-Nella, Stratford, Lindenwold and portion of Clementon				
9. Population supplied in territory served 41,158				
Summer population (if different than above) N/A				
10. Number of service connections in territory served 8,693				
11. Number of service meters in territory served 8,693				

A. E. Shearman, Jr.
Name (Please Print)

Operations Manager
- Production
Title

Signature

Date

10/1/90

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
1	51-11	9/26/90	77	25	+52
15	31-4723	9/26/90	78	180	-102

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
51-11	8/30/90	9
31-4723	8/30/90	5

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
1	51-11	15,470	15,094	8,557
4	51-12	15,470	15,094	8,557
8	51-13	-	-	-
10	51-14	1,345	15,094	8,557
13	31-1363	15,470	966	-
15	31-4723	15,470	15,094	8,557
60		9,375	9,375	8,556
61		10,715	10,715	8,556
14 ←	31-2360	816	816	336
41	31-5949	1,440	2,209	3,072
42	31-5950	67,107	66,661	65,003
43	31-5951	67,107	66,661	63,204
56	31-29320	11,013	11,013	10,585
57	31-29319	10,107	9,074	9,756

***Units of 1,000

240,833

237,866

203,296

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		WATER ALLOCATION PERMIT # 5200											
STREET ADDRESS 515 Grove Street, Haddon Heights, N.J. 08035		CITY	STATE ZIP										
FOR THE QUARTER ENDING: <input type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30 <input type="checkbox"/> June 30 <input checked="" type="checkbox"/> Dec. 31		FOR THE YEAR: 1990											
<table><tr><td>1. Diversion from own sources</td><td>Surface</td></tr><tr><td>Wells*</td></tr><tr><td>Total</td></tr><tr><td>2. Received from other systems (see 6)</td><td></td></tr><tr><td>3. Delivered to other systems (see 7)</td><td></td></tr><tr><td>4. Net diversion for territory served (see 8)</td><td></td></tr></table>		1. Diversion from own sources	Surface	Wells*	Total	2. Received from other systems (see 6)		3. Delivered to other systems (see 7)		4. Net diversion for territory served (see 8)		SUMMARY OF DIVERSION IN UNITS OF 1,000	
		1. Diversion from own sources	Surface										
		Wells*											
		Total											
		2. Received from other systems (see 6)											
3. Delivered to other systems (see 7)													
4. Net diversion for territory served (see 8)													
		1st Month	2nd Month	3rd Month									
		None	None	None									
		163,420	159,910	159,398									
		163,420	159,910	159,398									
		None	None	None									
		None	None	None									
		163,420	159,910	159,398									

5. How is diversion determined? If estimated, give basis of estimate All metered

6. Systems from which water is received None

7. Systems to which water is delivered None

8. Municipalities supplied in territory served Laurel Springs, Somerdale, Gibbsboro, Hi-Nella, Stratford, Lindenwold and portion of Clementon

9. Population supplied in territory served 41,158

Summer population (if different than above) N/A

10. Number of service connections in territory served 8,693

11. Number of service meters in territory served 8,693

* List individual well usage on reverse side of form
All metered

A. E. Shearman, Jr.
Name (Please Print)

Operations Manager
- Production
Title

Signature

Date

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
1	51-11	12/20/90	77	26	+51
15	31-4723	12/20/90	78	178	-100

Depth to Water in Feet

Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

FLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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51-11

31-4723

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
1	51-11	-	-	-
4	51-12	-	-	-
8	51-13	-	-	-
10	51-14	-	-	-
13	31-1363	-	-	-
15	31-4723	-	-	-
60		-	-	-
61		-	-	-
14 ←	31-2360	-	-	-
41	31-5949	7,788	9,024	2,304
42	31-5950	66,818	64,800	67,344
43	31-5951	67,010	64,800	67,344
56	31-29320	11,136	10,643	11,203
57	31-29319	10,668	10,643	11,203

*Units of 1,000

163,420

159,910

159,398

DWR-017 B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029, Trenton, N.J. 08625-0029

PUBLIC WATER SUPPLY DIVERSION REPORT

INSTRUCTIONS:

1. Reports must be filed within 30 days following the close of each quarter.
2. Report all quantities in units of 1,000 gallons.
3. Use reverse side of this form to report diversion from individual wells, when required, and to report water from and/or to other systems.
4. Obtain the correct name, address and permit number of the permittee from the mailing label of the envelope sent to you.
5. The sums of Items 1 and 2 should equal the sums of Items 3 and 4.
6. Other data required such as static water levels, chlorides and separate well reports should be placed on back of sheet or attached.

NAME OF PERMITTEE		WATER ALLOCATION PERMIT #		
NEW JERSEY-AMERICAN WATER COMPANY, WESTERN DIVISION		5200		
STREET ADDRESS		CITY	STATE ZIP	
515 Grove Street, Haddon Heights, N.J. 08035				
FOR THE QUARTER ENDING:		FOR THE YEAR:		
<input checked="" type="checkbox"/> March 31 <input type="checkbox"/> Sept. 30		1991		
<input type="checkbox"/> June 30 <input type="checkbox"/> Dec. 31				
		SUMMARY OF DIVERSION IN UNITS OF 1,000		
		1st Month	2nd Month	3rd Month
1. Diversion from own sources		None	None	None
Surface				
Wells*		158,257	132,505	129,807
Total		158,257	132,505	129,807
2. Received from other systems (see 6)		None	None	None
3. Delivered to other systems (see 7)		None	None	None
4. Net diversion for territory served (see 8)		158,257	132,505	129,807
* List individual well usage on reverse side of form				
5. How is diversion determined? If estimated, give basis of estimate All metered				
6. Systems from which water is received None				
7. Systems to which water is delivered None				
8. Municipalities supplied in territory served Laurel Springs, Somerdale, Gibbsboro, Hi-Nella, Stratford, Lindenwold and portion of Clementon				
9. Population supplied in territory served 37,599				
Summer population (if different than above) N/A				
10. Number of service connections in territory served 8,754				
11. Number of service meters in territory served 8,754				

A. E. Shearman, Jr.
Name (Please Print)Operations Manager
- Production
Title

Signature

Date

4-22-91

STATIC WATER LEVEL DATAMethod Used — ☐ M Scope ☒ Air Line ☐ Tape (Check appropriate box)

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Site Elevation</u>	<u>Level*</u>	<u>Total Head**</u>
1	51-11	3/27/91	77	26	+51
15	31-4723	3/27/91	78	152	-74

* Depth to Water in Feet

** Measurements in Feet From Sea Level (Total Head = Site Elevation - Static Level)

CHLORIDE ANALYSIS

<u>Well Permit No.</u>	<u>Date Taken</u>	<u>Analysis Results</u>
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51-11

31-4723

INDIVIDUAL WELL USAGE***

<u>Well No.</u>	<u>Well Permit No.</u>	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>
1	51-11			
4	51-12			
8	51-13			
10	51-14			
13	31-1363			
15	31-4723	-	-	4,896
60		-	-	2,793
61		-	-	3,192
14 ←	31-2360	-	-	-
41	31-5949	48	-	21,434
42	31-5950	63,653	57,749	44,400
43	31-5951	63,796	57,792	36,575
56	31-29320	15,603	14,112	13,709
57	31-29319	15,157	2,852	2,808
		158,257	132,505	129,807

***Units of 1,000

DWR-017 B